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ABSTRACT

This report summarizes the activities of the first year of a 2-year Lilly Endowment, Inc. sponsored project, which funded nine Indiana school corporations to select and field test current microcomputer software, and presents 53 critical software evaluations based on information gathered from teachers and students. Information provided by the report includes: (1) a statistical description of the field testing; (2) a summary of the evaluations; (3) a list of programs by general subject areas; (4) a list of programs by grade level; (5) a list of programs by hardware format used; (6) the evaluations (listed alphabetically by title); (7) recommendations of sources for computer software; (8) a sample agenda for a workshop on computer program utilization; and (9) a report on the need for centralized control of selection, evaluation, and acquisition of microcomputer software. Each software program evaluation lists the title, intended audience and curriculum, instruction method, hardware format, producer and/or distributor, stated program objectives, teacher evaluation, and student evaluation. Also included are sample microcomputer software evaluation forms for teachers and students. Summary notes on the evaluations indicate that most programs evaluated by the teachers received a "B" level, and very few were graded in the lowest levels of "D" or "F"; the most common student criticism was that the program was too easy. Statements and drawings from students' evaluation forms are used as illustrations throughout the report. (JB)

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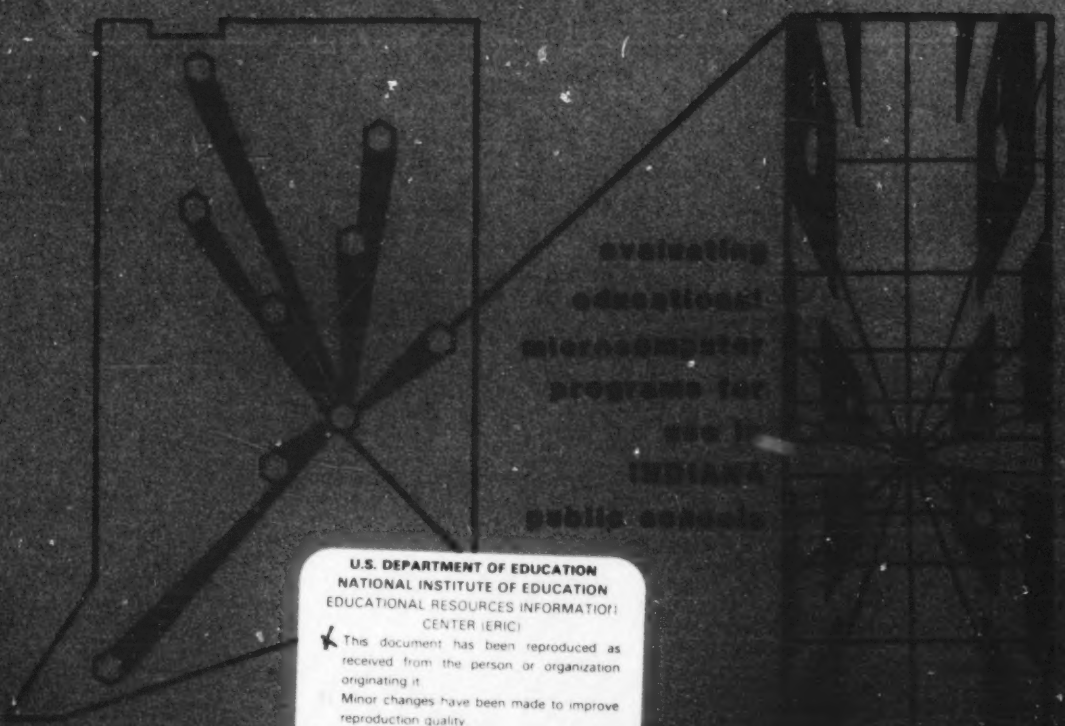

evaluating educational microcomputer programs for use in Indiana public schools

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TEACHER AND STUDENT FIELD TESTING OF MICROCOMPUTER SOFTWARE: A LILLY LINKAGE PROJECT FOR THE PURPOSE OF EVALUATING EDUCATIONAL MICROCOMPUTER PROGRAMS FOR USE IN INDIANA PUBLIC SCHOOLS

Volume One
August 1984

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This publication was made possible through funds granted by the Lilly Endowment, Inc. to the Northwestern Consolidated School District of Shelby County. The funding allows for a two year project involving up to nine school corporations in the selection and field testing of current microcomputer software. This publication is the result of the first year's work and contains 53 critical evaluations summarized from teacher and student comments. Other publications will follow. Comments concerning this publication as well as requests for future publications should be addressed to: Dr. Daniel Callison, School of Library and Information Science, Indiana University, Bloomington, IN 47405.

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PREFACE

In 1982 the microcomputer revolution was just underway and early reports from institutions testing and evaluating the first software to hit the market were filled with warnings and caution. Comments from that time period gathered by the Microcomputer Resource Center at the Teachers College of Columbia University in association with the Educational Product Information Exchange are summarized in the following early concerns:

*Expert examination of the teaching materials, or software, available for the programming of educational microcomputers has found most of them boring and pedagogically flawed.

*While computers, or hardware, are being installed in classrooms at a rapid rate, the software has failed to catch up. Many producers of software were found to be more interested in quick profits than in the improvement of education.

*Many experts believe that the success or failure of the computer's educational role is in precarious balance, as the machinery gets dangerously ahead of content, substance and pedagogical values.

*Many school districts have purchased hardware without first investigating the quality of materials available, thus fueling the growing fear that with the absence of educationally sound programs, the much-advertised educational computer age may be in jeopardy.

*Software is being produced by "small cottage industries" comprised of enterprising programmers who want to make a quick dollar and programs of questionable educational value have flooded the market. Space-war games and how to compute your taxes are the most common programs available.

*Often the commercial microcomputer program fits neither the teacher's nor the student's needs and is really not much different from an expensive textbook.

*Ninety-five percent of the large software packages deal with arithmetic. There is a need for programs in social studies, composition, science, and vocational education.

*Many of the programs are recommended for too wide an audience, ranging from elementary school children to adults. Few substantial packages are available for use in junior high or high school.

*Most programs do not induce higher skills, such as comprehension, analysis or application. Few deal with concepts.

*Most of the responses do not provide information as to why an answer is wrong (intrinsic or constructive feedback), although all of them tell a student the correct response.

*Many of the programs provide inadequate instructions for the students or none at all. In some instances the instructions are given in poor English.

*The microcomputer is particularly suited to the teaching of writing skills, although seldom programmed for such instruction.

*Teachers and students are urged to do their own programming and develop their own guidelines for evaluation of software through the examination and use of those few microcomputer programs which are educationally sound.

Indiana Public Schools and the Microcomputer

In 1982 a survey was sponsored by the Association of Indiana Media Educators to determine the status of the microcomputer in the Indiana public schools. Results of the survey were summarized by John Billard of Purdue University Calumet[1]:

*A majority of the public school corporations have microcomputers in operation (a survey of the Indiana Department of Public Instruction indicated that 90% of the school districts owned at least one piece of hardware).

*A majority of the software is selected and purchased directly by the school media specialist through the library fund.

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[1] John Billard, "Computers and the Indiana School Library Media Specialist," Indiana Media Journal, Summer 1983, pp. 18-19.

*Media specialists seem to be looked upon as having a responsibility for selection of media software for computer systems, but have not yet achieved the status as the computer expert in the schools.

*No one has taken a leadership role in the systematic selection of computer software in most schools. The media specialist will need to generate evidence of competence in evaluation skills before teachers can be expected to rely upon the media center for development of the software collection.

*There is agreement among media personnel around the state that workshops in computer program utilization need to be developed and conducted.

Over the past two years since the above comments were passed along to the education community, several steps have been taken in Indiana to meet the demands of the microcomputer revolution.

*An information clearinghouse has been established in Indianapolis allowing teachers and media specialists the opportunity to obtain the latest evaluation of many pieces of education software as well as the examine some of the actual programs. For further information contact:

INDIANA CLEARINGHOUSE FOR COMPUTER EDUCATION, 902 West New York, Indianapolis, IN 46223, (317) 264-8001.

*The state has supported the development of workshops throughout Indiana with the first series offered during the summer months of 1984. In addition, nine computer literacy training sites for teachers have been named by the Consortium for Computer and High Technology Education. These sites are:

Indiana State University at Evansville
The Wilson Education Center at Jeffersonville
Northwest Computer Consortium at Lake County
Elkhart Community Schools
Fort Wayne Community Schools
Clinton Prairie School Corporation
Indianapolis Public Schools
Ball State University at Muncie
Indiana University at Bloomington.

*The final stages of providing endorsement and certification in microcomputer skills are being completed. Thus teachers and media specialists can earn a position of instructional leadership as the result of completing a set number of hours and an established program approved by the state.

In addition, a project involving nine school corporations in the field testing of microcomputer software completed its first year. What follows in this document is a summary and a set of evaluations resulting from that first year. We hope that this information will give a portion of the direction needed to meet the demands of the microcomputer revolution.

INTRODUCTION

The Field Testing Method

During the first year of this project, five school corporations requested over 200 individual microcomputer programs for the purpose of previewing the materials. Acquisition of these programs was coordinated through Gloria Haycock of Northwestern Consolidated Schools. The programs were determined through site contact persons at each of the school corporations. In each case the site contact person was responsible for development of a materials collection within his or her own corporation, usually employed under the title "media supervisor" for the corporation.

Contact people for the first year of the project were:

NORMA MILLER	Monroe County Public Schools	Bloomington
ANN HANES	Richmond Community Schools	Richmond
DAVID FLOWERS	Fort Wayne Community Schools	Fort Wayne
MIKE TRON	Evansville-Vanderburg Schools	Evansville
MARY OPPMAN	Portage Township Schools	Portage

These contact people organized a core of 20 to 30 teachers who identified specific programs they wanted to consider for use in the classroom. For each site, approximately $1800 in microcomputer software was obtained on preview. These initial programs were taken to their respective sites where the teachers and media specialists selected programs they felt were worth the time and effort to take into the classroom for field testing.

The field testing period ran for a total of six weeks. Each site hosted a three hour workshop session in which teachers were made aware of questions for microcomputer software evaluation from MicroSHIFT[2] and the special evaluation forms designed for the Lilly project. Teachers and media specialists previewed the programs and scheduled those they desired to field test. Teachers scheduled the programs for as short a testing period as two days or as long as three weeks depending on their class activities and access to hardware.

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[2]The MicroSHIFT Evaluations Guide is distributed by the International Council for Computers in Education, University of Oregaon, 1787 Agate Street, Eugene, Oregon 97403.

1. Teachers were instructed to follow these procedures for the field testing exercise[3]:

   a. Examine and read all documents and instructions given with the program.
   b. Work through the program giving what you believe to be the correct responses for each request, command or question.
   c. Work through the program as you feel your students might by giving incorrect answers, pushing buttons at random, attempting to feed mistakes in order to determine the program's response.
   d. Complete the teacher's evaluation form in detail.
   e. Attempt to allow two other teacher or media specialists in the same building to evaluate the program (following a-d above).
   f. Allow time for ten to twenty students to evaluate the program and complete a student's evaluation form.
   g. All programs and forms were gathered by the site contact person and forwarded to Daniel Callison, School of Library and Information Science, IU, Bloomington, for final summarization.

Teachers and media specialists who attended the workshop for preview and selection of the software for field testing were for the most part educators who had experienced software before and had some experience in using such materials in the classroom. Each of these teachers, of course, sought out programs which matched his or her subject area and grade level taught. In some cases a teacher would field test three or four programs, in other cases only one, and in other cases none at all. The major emphasis at the workshop was to "commit yourself to a program" with the understanding that some time would be spent with it and the teacher would attempt to get others to examine the program too.

There was a varying degree of success in the field testing process. In a few cases programs were eventually examined for several hours, tested by six or more teachers and over thirty students. In some cases programs were scheduled, sent to the school and received no attention at all. Field testing has always been a method high on the list of those who desire such data, reflecting actual hands-on use by teachers and students, and yet has also always been low on the list of methods that provide such information efficiently and

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[3]Ann Lathrop describes a similar method in "Microcomputer Courseware: Selection and Evaluation," Top of the News, Spring 1983, pp. 265-74.

quickly[4]. Indeed, field testing is an evaluation method which is so troublesome and expensive that most producers of instructional materials fail to go through such a process prior to marketing the product[5].

Generally, teachers and media specialists involved with the first year of this project gave time and energy to the field testing approach for evaluation. This system produced results only because:

1. it involved teachers who demonstrated a commitment;
2. it provided materials that were of high interest to the teachers;
3. teachers had a reasonable assurance that materials they recommended would be retained by the corporation as a part of their own software collection;
4. teachers were given time beyond the usual very short periods for such previewing and evaluation;
5. teachers had a sense of urgency themselves concerning the need for quality software in the public schools;
6. the school corporations involved were leaders and exemplary in developing materials collections and ready to explore microcomputer software offerings.

Allowing students to preview and evaluate was a completely new approach for most of the teachers. Thus, although there are a few instances of students becoming greatly involved in the process, usually students were ushered through the program in haste.

In conclusion it must be said that this first year of the project was used to experiment and refine the field testing approach. In some cases, programs which were of rather high quality were missed. In some cases, teachers were still not able to give full attention to the demands of the field testing exercise because they did not have easy access to the hardware needed nor did they want to allow classroom time for student involvement.

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[4]John Belland, "Factors Influencing Selection of Materials," School Media Quarterly, Winter 1978, pp. 112-9.

[5]Carol Truett, "Field Testing Educational Software: Are Publishers Making the Effort?" Educational Technology, May 1984, pp. 7-12.

As the year progressed, so did the approach to the evaluation process. By May 1984 more and more teachers gave serious attention to the evaluation process. We hope that what we have learned from this first year will make our second year even more successful. School corporations which will field test programs during the 1984-85 school year are:

GLORIA HAYCOCK	Northwestern Consolidated Schools	Fairland
KAREN NIEMEYER	Carmel Clay School Corporation	Carmel
JOANNE TROUTNER	Tippecanoe County Corporation	Lafayette
MARY WOLCOTT	Yorktown School Corporation	Yorktown

STATISTICAL DESCRIPTION OF THE FIELD TESTING

1. Of the 220 programs ordered for initial previewing, 53 were retained and field tested in the classroom.

2. A total of 1,197 students were involved in the field testing. The average number of students involved in the field testing of a program was 23.

3. A total of 162 teachers were involved in the field testing. The average number of teachers involved in the field testing of a program was 3.

Teacher Characteristics

4. Generally, the teachers represented the elementary grades of third, fourth or fifth as 57% of the teachers completing evaluation forms indicated they taught one of these grade levels. Twenty-two (14%) of the teacher evaluation forms were completed by media specialists, 15 of the 22 from elementary school libraries.

Teacher Grade Level	Percentage of Evaluators
K	less than one percent
1	11%
2	less than one percent
3	13%
4	22%
5	22%
6	7%
7	9%
8	6%
9	1%
10	4%
11	3%
12	1%

5. Areas of specialization represented by the elementary school teachers included eight reading teachers and eight special education teachers.

6. Subject areas represented by teachers in grades 7 - 12 included:

   14 in math, seven in science, six in talented and gifted, five in art, four in social studies, three in special education, two in physical education, one in band, and one in industrial arts.

7. In all but two cases, evaluation forms were completed by teachers involved directly with the subject matter and grade level of the program being tested. Thus 99% of the evaluation forms were completed by teachers concerned directly with possible implementation of the software into their own classroom.

8. A majority of the teachers (59%) had worked with ten or more microcomputer programs prior to conducting the field test exercise. Only 3% of the teachers evaluating programs had never worked with instructional computer software before this exercise.

9. Thirty-eight percent of the teachers indicated they had worked with ten or more programs in the classroom using the software as instructional material prior to the field testing exercise. Twenty-two percent indicated they had never used microcomputer software in the classroom prior to their evaluation. Thirty-four percent had used two programs or less in the classroom.

TEACHER EVALUATION

10. TEACHER EVALUATION FORM, QUESTION 2
On the average, teachers gave 40 minutes to the examination of a program before completing the evaluation form. Of course, some programs demanded more time than others, ranging from as much as 225 minutes for one mystery puzzle or 193 minutes spent learning how to draw on the television monitor, down to 3 or 4 minutes to view a simple drill and practice exercise in math.

11. TEACHER EVALUATION FORM, QUESTION 3
Overall, the programs received fairly high grades from the teachers. To some extent this is to be expected, because teachers usually decided to spend the time to field test only those programs for which they initially saw some value for the classroom. In only a few cases, no more than six that we know of, the teacher decided to field test the software even though he initially saw some major problems with the program's content.

Therefore the grades given to the 53 programs are as follows:

a. This program meets its own stated objectives
A (32%) B (54%) C (12%) D (2%) F (0%)

b. This program is suited for its intended grade level
A (28%) B (46%) C (20%) D (6%) F (0%)

c. This program is likely to arouse student interest
A (30%) B (36%) C (22%) D (8%) F (4%)

d. The content of this program is accurate
A (38%) B (42%) C (16%) D (8%) F (0%)

e. Verbal and graphic information is well paced and clear
A (27%) B (45%) C (20%) D (8%) F (0%)

f. This program provides sufficient review without unnecessary redundancy
A (18%) B (38%) C (34%) D (8%) F (2%)

g. Relevant practice or testing is consistently provided
A (18%) B (51%) C (22%) D (6%) F (2%)

h. Feedback (knowledge of correct response) is consistent and provides remediation
A (16%) B (49%) C (23%) D (10%) F (2%)

i. Learner responses require "thought" and are a "challenge"
A (34%) B (42%) C (14%) D (6%) F (0%)
No Grade Given (4%)

j. The instructional approach used (tutorial, drill & practice, simulation, game) suits the program's content
A (26%) B (48%) C (22%) D (2%) F (0%)
No Grade Given (2%)

k. Documents and printed guides give sufficient support
A (21%) B (40%) C (23%) D (10%) F (0%)
No Grade Given (6%)

l. The program provides a clear evaluation of the student's performance
A (24%) B (16%) C (37%) D (8%) F (10%)
No Grade Given (4%)

The final criterion graded by the teachers, concerning evaluation of the student's performance, was the only statement that did NOT receive a majority of its grades in the A or B range. Thirty-seven percent of the teachers noted only average attention given to this area and 10%, the highest collection of F grades, indacted no evaluation of the student's performance by some programs at all.

12. TEACHER EVALUATION FORM, QUESTION 4 STRENGTHS
When asked to state one major strength of the software they were evaluating, 70% of the teachers did so. Most frequent examples of strengths include:

"motivating and inticing" mentioned 22 times
"excellent graphics" mentioned 17 times
"provides drill and review" mentioned 12 times
"easy and fun" mentioned six times.

Other comments which seemed to begin to touch on exciting aspects of microcomputer software were:

"provides immediate feedback and leads student to answers" mentioned seven times
"the student must think to solve challenging problems" mentioned six times
"there is a variety of programs" or "you can adjust the skill level" mentioned four times
"several children can work together" mentioned four times
"clear record of student's progress" mentioned four times
"provides excellent vocabulary" mentioned four times
"clear directions" mentioned four times
"encourages experimentation" mentioned three times
"requires concentration," "content relevant to student's everyday life," and "needs little teacher supervision" each mentioned once.

13. TEACHER EVALUATION FORM, QUESTION 4 WEAKNESSES

When asked to state one major weakness of the software they were evaluating, 62% of the teachers did so. Most frequent examples of weaknesses include:

"poor or unclear directions" mentioned 14 times
"content not accurate" mentioned ten times
"program is boring" mentioned eight times
"graphics are not clear" mentioned eight times
"program fails to give feedback to allow for remediation or correction of errors" mentioned six times
"program is slow in loading" mentioned five times
"unable to control the skill level" mentioned five times
"forced to repeat previously completed programs when entering to do other programs" mentioned four times
"lack of program variety and lack of challenge" mentioned three times
"too hard for the intended audience" mentioned three times
"teacher has to restart for the student" mentioned three times
"does not teach entry level skills necessary to complete the program" mentioned three times

"makes it fun to fail (because the graphic given as the result of a wrong response is more exciting than the one given for a correct answer)" mentioned once.

14. TEACHER EVALUATION FORM, QUESTION 5
When asked to describe how the program might be used in the classroom, 84% of the teachers did so. Nearly 90% of those giving such a description, however, mentioned little more than "individualized review," or "drill," or "use as a supplement only." A few other descriptions included such comments as "useful as a pretest," "could be used to introduce the subject or raise questions for discussion in class," and "could be used by students to get ideas for their own computer programs." Such comments, however, totaled no more than 5% of the teacher responses. In addition, under 5% of the teacher provided ideas as to other materials or activities that would be relative to the microcomputer program.

15. TEACHER EVALUATION FORM, QUESTION 6
When asked to describe other areas of the curriculum that could utilize the program other than their own class, 27% of the teachers did describe such possibilities. Most of the comments related to possible uses outside of the "mainstream" classroom and simply noted that students working independently or one to one with a teacher in special education or the talented program might use the program.

16. TEACHER EVALUATION FORM, QUESTION 7
When asked to compare the program they were evaluating with one other microcomputer program which covered the same area or topic, 21% provided such a comparision. In only five cases did the comparisons indicate that some other program was better than the one being evaluated for this project.

17. TEACHER EVALUATION FORM, QUESTION 8
Teachers were asked to select from three given statements the one which best described the relationship of the evaluated microcomputer to materials currently available on the same topic or subject area. Responses were as follows:

17% indicated that the current noncomputerized materials provide an adequate presentation for my students without the use of this microcomputer program as supplemental material.

60% indicated that this microcomputer program supports and enhances my current materials and would provide basic support to the instruction of the skills I require of my students.

11% indicated that this microcomputer program introduces a new content area and additional skills not currently required of my students and I would welcome it as an essential new part of the instructional unit.

12% gave no response.

18. TEACHER EVALUATION FORM, QUESTION 9
Teachers were asked to give the program an overall rating on a scale of "0" (lowest) to "100" (highest). The average rating for the programs was 73 (representing the average of the averaged ratings for each program). Ten of the programs received an averaged rating of 90 or more and six of the programs received and averaged rating of 50 or less.

Student Characteristics Grade Level 3 - 12

19. Of the 1,197 students evaluating programs, 992 (83%) completed evaluation forms designed for students in grades 3 to 12. (These students could read and complete the form by themselves.) Of this group, 50% were from the fourth or fifth grade. Representation by grade level:

Grade	Percentage of Total
3	8%
4	23%
5	27%
6	10%
7	10%
8	14%
9	6%
10	0%
11	less than one percent
12	1%

Age distribution of the student group matches to the grade levels represented with 50% of the students from the 10 or 11 year old groups.

Age	Percentage of Total
7	1%
8	3%
9	10%
10	33%
11	17%
12	10%
13	14%
14	6%
15	5%
16	0%
17	2%

20. Students who completed evaluation forms for the project represented a wide range of experience levels with microcomputer software. Thirty persent had worked with ten or more programs prior to the evaluation of a program for this project. However, 19% indicated they were working with an education microcomputer program for the first time, and a majority (55%) of the student evaluators had worked with fewer than five programs prior to the evaluation.

21. The average amount of time spent with the program before the student completed the evaluation form was 34 minutes. Of course, some programs demanded more time than others to complete with some students spending several hours (197 minutes, 165 minutes as highs) and some drill programs requiring only four or five minutes in order for the student to get some idea of the program's content. Such a brief encounter of under ten minutes would hardly simulate the expected contact with the program in normal classroom conditions. Even drill and practice programs must be worked with for several half-hour periods in order to understand their full effect. Thus, students were ushered through the field testing experience without being given a chance to fully experience the program. One student in five (20%) reported they had to leave the program before they were done.

22. In addition to the rather high percentage of students reporting they had to stop examining the program before they had completed it (20%), the students reported other reasons for escaping or aborting the program before its completion: 6% indicated they got bored, 3% said the program failed to work properly, and 3% indicated they left the program early because it was too hard.

STUDENT EVALUATION

23. STUDENT EVALUATION FORM, QUESTION 3
Students were asked to check their agreement or disagreement with 17 statements concerning the software they examined. An averaging of the responses to each of the statements gives the following results:

a. I'd like to do this program again.
(74%) AGREED (26%) DISAGREED

b. I think this program is too hard.
(9%) AGREED (91%) DISAGREED

c. The pictures (graphics) were helpful.
(72%) AGREED (28%) DISAGREED

d. I got lost in this program and didn't know what to do.
(14%) AGREED (86%) DISAGREED

e. I really had to think in order to get the right answer.
(47%) AGREED (53%) DISAGREED

f. This program helped me when I made a mistake.
(59%) AGREED (41%) DISAGREED

g. I got all of the questions right on the first try.
(34%) AGREED (66%) DISAGREED

h. Compared to the other times I have studied this subject, this program was fantastic.
(56%) AGREED (44%) DISAGREED

i. I would rather work on this program by myself than with other classmates.
(57%) AGREED (43%) DISAGREED

j. I would like to be graded by my teacher on the work I did with this program.
(55%) AGREED (45%) DISAGREED

k. If I could, I would take this program home to use it.
(64%) AGREED (36%) DISAGREED

l. I would rather do this program with a classmate than by myself.
(43%) AGREED (57%) DISAGREED

m. This program is a waste of my time.
(17%) AGREED (83%) DISAGREED

n. This program is too long.
(20%) AGREED (80%) DISAGREED

o. I think my friends would enjoy this program.
(71%) AGREED (29%) DISAGREED

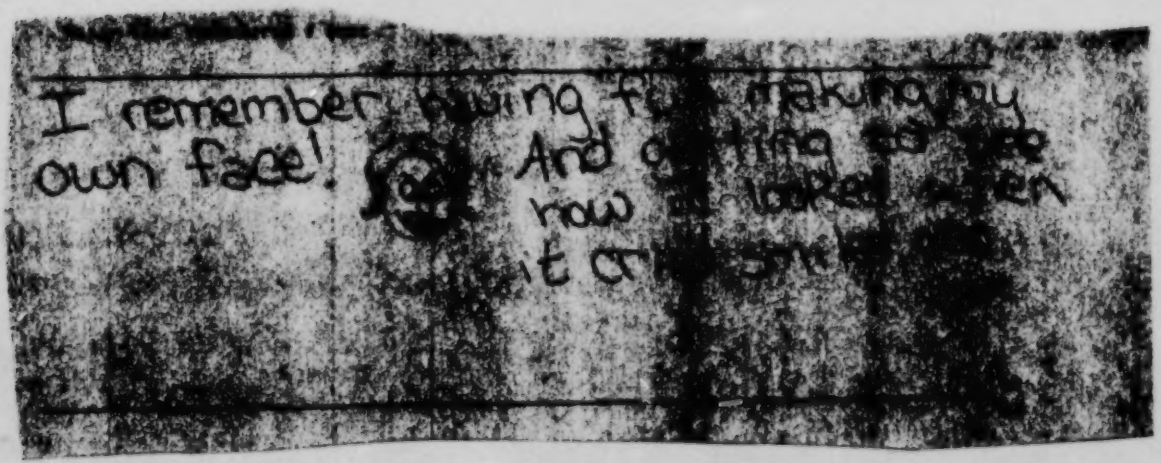
p. I could do this program without help from my teacher.
(29%) AGREED (71%) DISAGREED

q. This program was too easy for me.
(34%) AGREED (66%) DISAGREED

24. STUDENT EVALUATION FORM, QUESTION 4
Students were asked to use the space on the second half of the evaluation form to write a statement or draw a picture that expressed a major idea remembered from the microcomputer program they just completed. Forty-five percent of the students provided at least one statement or drawing that reflected a relationship to the program. Thirty-five percent gave two such statements or drawings. The statements from the students were categorized as follows:

40% of the student responses were in the form of drawings that reproduced a graphic from the program.

EXAMPLE:



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25% of the student responese were related to a specific fact or a factual answer to a problem posed in the program.

EXAMPLE:

Major idea remembered # one:

When temperature of a gas increases [illegible]

Major idea remembered # two:

It is possible to have a noun modified by many adjectives

15% of the student responses were statements or pictures related to commands for operation of the program.

EXAMPLE:

Major idea remembered # one:

I learned to always read the sentences because the first time I played I didn't read them and I got them wrong.

Major idea remembered # two:

Never hit the Button that Exit you have to start All over Again

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9% of the student responses related to a concept, theory, general principle or overall purpose of the program.

EXAMPLE:

Major idea remembered # one:

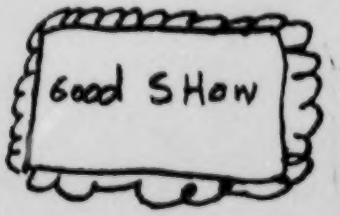
I learned how to find square roots of numbers. The program helped because it told me how far away I was from the number and made me try over and over to get it right.

I helped [illegible] how to change precentages to fractions

9% of the student responses reflected the program's reward for a correct answer.

EXAMPLE:

Major idea remembered # two:



Major idea remembered # two:

it gave you three tries to get it right and then gave you the answer. It had 4 different levels for you to chose

Major idea remembered # one:

It would help correct my mistakes if I made them, and it didn't "scold" me.

1% of the student responses indicated there was more they needed to know before they could complete the program.

EXAMPLE:

Major idea remembered # one:

That when working with a ... you must know the formulas in order to work the problems.

Student Characteristics Grade Level K - 2

A third evaluation form was designed for students in kindergarden, first or second grade, or for use with those students who could not read the 3-12 evaluation form. Teachers were expected to read the questions to the students and they would then mark or color in a happy or sad face as well as draw a reaction to the program.

26. 205 (17%) of the student evaluations were completed using this form. In all cases, students were in kindergarden, first or second grade.

27. For 27% of these students, it was the first time they had examined or used educational microcomputer software. A majority (53%) of these students, however, had experienced five to ten programs in the classroom prior to their evaluation of the program for this project.

28. The average time spent with the program before completing the evaluation form was 14 minutes. A high of 40 minutes was noted for one program with the low being only 5 minutes.

29. One child in four (25%) was asked to evaluate the program before the program was completed or before the child felt

they had experienced the entire program. Seven percent of the children indicated they did not finish the program because they got bored.

STUDENT EVALUATIONS

30. STUDENT EVALUATION FORM, QUESTION 3
Students were read four statements and asked to react with "yes" or "no":

a. I would like to do this program again.
(98%) Yes (2%) No

b. I think my friends in class would like to do this program.
(97%) YES (3%) NO

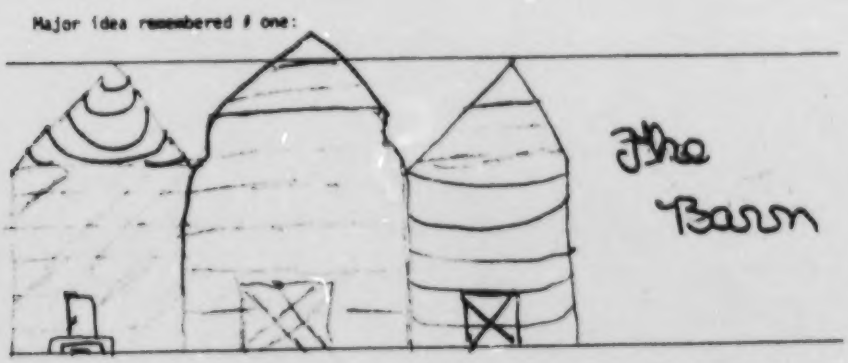
c. I could do this program without help from my teacher.
(97%) YES (8%) NO

d. I liked the pictures in this program.
(82%) YES (12%) NO

31. Students were requested to draw two pictures that represented what he or she remembered best from the experience with the program. The pictures reflected positive experiences in almost all cases. Sixty percent of the students drew at least one picture and 37% drew two.

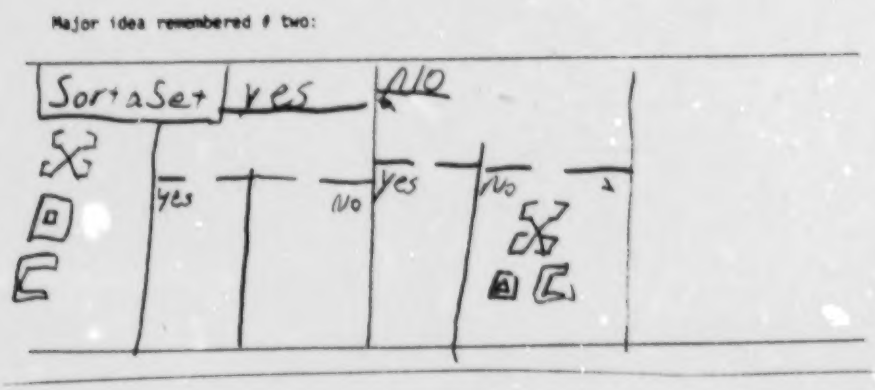
91% of the pictures were a reflection of a graphic directly from the program.

EXAMPLE:



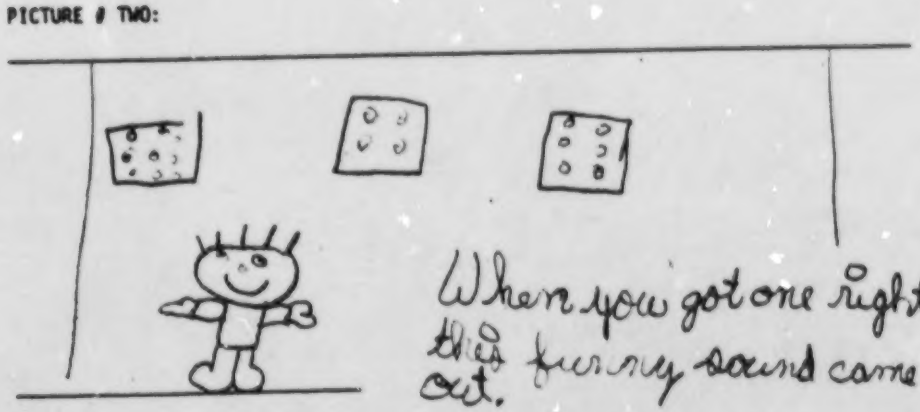
4% of the pictures reflected a single fact remembered.

EXAMPLE:



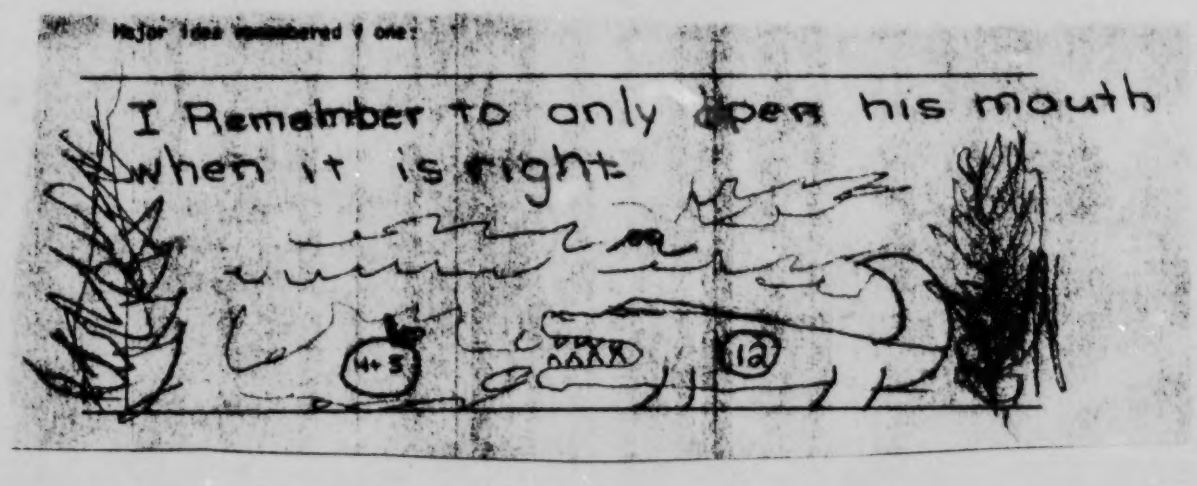
3% of the pictures reflected feedback or reward for a correct answer.

EXAMPLE:



2% of the pictures reflected <u>operation</u> of the computer itself.

EXAMPLE:



32. When students were asked to rate the given program from "0" (lowest) to "100" (highest), the average rating given was "75." Only students completing the evaluation form for grades 3-12 gave such a rating to the programs.

TEACHER Microcomputer Software Evaluation Form 1983-1985 Lilly Endowment Grant

PROGRAM TITLE: _____ Date: _____

Your teaching subject area and grade level: _____

1. How many different educational microcomputer programs have you examined prior to this program? (circle) 1 2 3 4 5 6 7 8 9 10+

   How many programs have you used with your classes prior to the evaluation of this program? (circle) 1 2 3 4 5 6 7 8 9 10+

2. Did you work through the entire program? (circle) YES NO
   If yes; how long did it take you to complete the program? _____minutes
   If no; how long did you work with it? _____minutes
   Why did you stop before finishing?

3. GRADING THE PROGRAM.

	High	(circle one)			Low
a. This program meets its own stated objectives	A	B	C	D	F
b. This program is suited for its intended grade level	A	B	C	D	F
c. This program is likely to arouse student interest	A	B	C	D	F
d. The content of this program is accurate	A	B	C	D	F
e. Verbal and graphic information is well paced and clear	A	B	C	D	F
f. This program provides sufficient review without unnecessary redundancy	A	B	C	D	F
g. Relevant practice or testing is consistently provided	A	B	C	D	F
h. Feedback (knowledge of correct response) is consistent and provides remediation	A	B	C	D	F
i. Learner responses require "thought" and are a "challenge"	A	B	C	D	F
j. The instructional approach used (tutorial, drill & practice, simulation, game) suits the program's content	A	B	C	D	F
k. Documents and printed guides give sufficient support	A	B	C	D	F
l. The program provides a clear evaluation of the student's performance	A	B	C	D	F

Please write any additional comments concerning any areas of section #3 on the back of this sheet. Identify your comments by noting before each #3 and the letter of the grading statement to which you are referring.

4. State a major STRENGTH of this microcomputer program.

   State a major WEAKNESS of this microcomputer program.

5. Describe how you would utilize this program with your students. If not, write NO. (Continue your description on the back of this sheet if necessary. Consider specific topic areas currently in your class and any relationship this program would have to that topic; consider large group or independent study usage; consider where the program fits in your normal teaching plan; and consider additional materials that would make this program even more useful.)

6. Describe areas of your school's curriculum which could utilize this program other than your own classes. If none, write NO.

7. Have you worked with another microcomputer program similar in content (with similar learning objectives) ? (circle) YES NO

   If yes; give the title:

   Of the two programs, which do you feel has more educational value for your class? Note reasons.

8. Circle the letter by the statement which best reflects your feeling toward this microcomputer program in comparison to materials you may currently have access to for enhancing your classroom instruction:

   A. The current noncomputerized materials provide an adequate presentation for my students without the use of this microcomputer program as SUPPLEMENTAL material.
   B. This microcomputer program supports and enhances my current materials and would provide BASIC support to the instruction of the skills I require of my students.
   C. This microcomputer program introduces a new content area and additional skills not currently required of my students and I would welcome it as an ESSENTIAL new part of the instructional unit.

9. Overall, on a scale of "0" (lowest) to "100" (highest), I rate this microcomputer program as : _____.

This form is normally printed on 8½ x 14 paper.

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NOTE: If there is more than one program on the disk or tape, please complete one evaluation sheet for each program. Give the title of the program series and the individual program title in the space below.

STUDENT (3-12) Microcomputer Software Evaluation Form 1983-1985 Lilly Endowment Grant

PROGRAM TITLE: _____ Date: _____

The student's current grade level _____ and age _____

1. How many different educational microcomputer programs have you worked with prior to this program? (circle) 1 2 3 4 5 6 7 8 9 10+ or NONE

2. Did you work through the entire program? (circle) YES NO

If yes; how long did it take you to complete the program? _____ minutes

If no; how long did you work with it? _____ minutes

Why did you stop before finishing the program? (circle one of the following):

TOO HARD GOT BORED HAD TO LEAVE DID IT BEFORE DIDN'T WORK

or OTHER:

3. After each statement, check (✓) if your agree or disagree:

		AGREE (yes)	DISAGREE (no)
a. I'd like to do this program again.	a.	_____	_____
b. I think this program is too hard.	b.	_____	_____
c. The pictures (graphics) were helpful.	c.	_____	_____
d. I got lost in this program and didn't know what to do.	d.	_____	_____
e. I really had to think in order to get the right answer.	e.	_____	_____
f. This program helped me when I made a mistake.	f.	_____	_____
g. I got all the questions right on the first try.	g.	_____	_____
h. Compared to the other times I have studied this subject, this program was fantastic	h.	_____	_____
i. I would rather work on this program by myself than with other classmates.	i.	_____	_____
j. I would like to be graded by my teacher on the work I did with this program.	j.	_____	_____
k. If I could, I would take this program home to use it.	k.	_____	_____
l. I would rather do this program with a classmate than by myself.	l.	_____	_____
m. This program was a waste of my time.	m.	_____	_____
n. This program is too long.	n.	_____	_____
o. I think my friends would enjoy this program.	o.	_____	_____
p. I could not do this program without help from my teacher.	p.	_____	_____
q. This program was too easy for me.	q.	_____	_____

Northwest Consolidated Schools of Fairland & School of Library and Info Science IU

4. Using written statements, pencil drawings, a graph, or any other written means of expression, show below two major ideas you remember from the program. Use a common #2 lead pencil to give your response.

Major idea remembered # one:

_____

_____

Major idea remembered # two:

_____

_____

5. Overall, on a scale of "0" (lowest) to "100" (highest), I rate this microcomputer program as : _____.

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STUDENT (K-2) Microcomputer Software Evaluation Form 1983-1985 Lilly Endowment Grant

PROGRAM TITLE: _____ Date: _____

The student's current grade level _____ and age _____

1. How many different educational microcomputer programs have you worked with prior to this program? (circle) 1 2 3 4 5 6 7 8 9 10+

2. Did the student work through the entire program? (circle) YES NO
   If yes: how long did it take the student to complete the program? _____minutes
   If no: how long did the student work with it? _____minutes
   Why did the student stop before finishing the program? (circle one from following):

   TOO HARD GOT BORED HAD TO LEAVE DONE IT BEFORE DIDN'T WORK

   or OTHER:

3. The teacher will read each of the following statements and allow the student to color-in the face which best reflects the student's thoughts toward the program.

   a. I would like to do this program again.

   b. I think my friends in class would like to do this program.

   c. I could do this program without help from my teacher.

   d. I liked the pictures in this program.

4. In the spaces given below, the student should be allowed to draw two pictures that represent what he or she remembers best from the experience with the microcomputer program. The student should use a common #2 lead pencil.

PICTURE # ONE:

PICTURE # TWO:

This form is normally printed on 8½ x 14 paper.

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Summary of the Evaluations: Some Notes

The first pool of evaluations totals 53 individual reviews of current educational microcomputer software. In some cases, the summary is based on the opinions of a very limited population, perhaps only one teacher and only a couple of students. It should be understood that in order for such tabulated and summarized evaluations to have merit, there should be a great deal of input.

To some extent, it is healthy to have enough input that different groups of evaluators can be identified by common characteristics and the group's consensus can be measured against another group, or measured against a standard (norm) of previous groups. Only a few comparisons are possible in this first pool of evaluations. As our pool of evaluations and evaluators grows, there can be a standard established which other school corporations can use for determining one element of measurement for decisions to accept or reject software. It should be remembered, that such a norm, when it is available, will give only one of the many parts that go into making a final decision for selection, and that the norm can only reflect the general scope of those types of programs field tested in order to determine the norm.

The forms designed for this project request and encourage open comments. Teachers are asked to state specific strengths and weaknesses, how the program would be of use in the classroom, and how the program compares to other materials they have used. Students are asked to state or draw what they learned from working with the program. In addition, both teacher and student are asked to express an opinion concerning various statements designed to measure the merits of the program. The teacher is asked to grade from A to F and the student is asked to agree or disagree.

When the teachers and students express their opinions through a similar series of statements, a trail of check marks or circled grades leads to a tabulation of such opinions and eventually to an averaging in order to determine a consensus.

In this report, five exemplary school corporations have selected and field tested, to date, 53 microcomputer programs. Because such a limited number is available for the first volume, a narrative format has been used to summarize the evaluations. Future publications of the evaluations will include more statistical data arranged in charts for quick summary, comparison and interpretation. As the evidence from the evaluation forms stands now, a few initial patterns emerge, but one must remember that other evaluations will add data to this pool over the next year. Evaluations from four more school corporations will be gained. These additional evaluations are needed in order to firm a standard measurement for the entire evaluation process.

The initial evidence from the grading by the teachers, for example, indicates average grades at the "B" level and not the "C" level. Also, very few of the programs have been graded in the lowest levels of "D" or "F."

Some initial trends can also be seen as teacher and student responses to the overall rating of individual programs is averaged and compared.

For each program, teachers gave their impression of the overall rating of the program by simply giving us a number from 0 to 100. For each of the programs, that overall rating was averaged, and then the averages were averaged. This produced, after this first set of 53 programs, an average rating of "73" from the teachers. The same process determined an average rating of "75" from the students.

Standard deviations were figured for both teacher and student ratings. The standard deviation for the teacher rating was 20 and the standard deviation for the student rating was 19.

This means that an exceptionally high rating of a program by a group of teachers should average at least "93." An exceptionally low rating from a group of teachers should average "53" or lower. The student ratings would reflect "94" as exceptionally high and "56" as exceptionally low.

Standard deviations for the first 53 programs evaluated were also determined for the agreement and disagreement responses from the students, grades 3-12.

Statement from Student Evaluation Form (3-12)	Agreement: Average %	SD	Ex High	Ex Low
a. I'd like to do this program again.	74	25	99	49
b. I think this program is too hard.	9	13	22	0
c. The pictures (graphics) were helpful	72	23	95	49
d. I got lost in this program and didn't know what to do.	14	19	33	0
e. I really had to think in order to get the right answer.	47	22	69	25
f. This program helped me when I made a mistake.	59	27	86	32
g. I got all of the questions right on the first try.	34	22	56	12
h. Compared to the other times I have studied this subject, this program was fantastic.	56	27	83	29
i. I would rather work on this program by myself than with other classmates.	57	21	78	36
j. I would like to be graded by my teacher on the work I did with this program.	55	23	78	32
k. If I could, I would take this program home to use it.	63	26	89	37

Statement from Student Evaluation Form (3-12)	Agreement: Average %	SD	Ex High	Ex Low
l. I would rather do this program with a classmate than by myself.	57	21	78	36
m. This program was a waste of my time.	17	20	37	0
n. This program is too long.	20	19	39	1
o. I think my friends would enjoy this program.	71	25	96	46
p. I could not do this program without help from my teacher.	29	20	49	9
q. This program was too easy for me.	34	20	54	14

In other words, the normal agreement percentage from the student groups involved in the field testing for the statement,(q) "This program was too easy for me," was 34%. It was normal for a third of the students to agree with the statement. The average deviation from this norm was 20. Therefore, before we could begin to say the group had an exceptional agreement or disagreement with the statement, that group's response would need to differ from the norm by 20%. An exceptionally high agreement to the statement, "This program was too easy for me." would be 54% or more. An exceptionally low agreement, or what we could call an exceptionally high disagreement percentage, would be only 14% of the group agreed with the statement, "This program was too easy for me."

PROGRAM LISTING BY GENERAL SUBJECT AREAS

Title -- Grade Level -- Hardware

Art

Art Volume 1 Perspective -- 7-12 -- Apple
KoalaPad Illustrator -- K-12 -- Apple, Commodore

Computer Literacy - Keyboarding

Computer Literacy -- 6+ -- Apple
Early Games for Young Children -- K-1 -- Apple, Commodore
Kids on Keys -- K-3 -- Commodore
Typing Tutor and Word Invaders -- 4-12 -- Commodore
Understanding Computers -- 6+ -- Apple

Language Arts - Reading - Spelling - Grammar

Alphabet Zoo -- K-3 -- Commodore
Beginning and Ending Sounds -- 1-3 -- TRS 80
Big Door Deal -- 4-6 -- Apple
English Basics: Adjectives -- 3-6 -- Commodore
English Basics: Adverbs -- 3-6 -- Commodore
Intermediate Language Arts -- 4-8 -- Commodore
Library Skills -- 4-8 -- Apple
Mr. Long and Mr. Short -- K-3 -- TRS 80
Punctuation I: End Punctuation -- 4-6 -- TRS 80
Reading Readiness: Visual Discrimination -- K-2 -- TRS 80
Spellagraph -- 2-10 -- Commodore
Spellicopter -- 2-10 -- Commodore
Syllabication -- 3-6 -- TRS 80
Up for Grabs -- 3-12 -- Commodore
Winning with Phonics -- 6-12 -- TRS 80
Word Search -- 4+ -- TRS 80
Working with the Alphabet -- K-3 -- Apple

Logic - Puzzles - Problem Solving - Memory

Facemaker -- K-6 -- Apple
Gertrude's Puzzles -- 1-9 -- Apple
Snooper Troops Case #1 -- 4+ -- Apple, Commodore
Snooper Troops Case #2 -- 4+ -- Apple, Commodore
Thinking Skills -- 2-7 -- TRS 80

Math - Arithmetic

Alligator Mix -- 1-6 -- Apple, Commodore
Algebra I -- 7-12 -- Apple
Bumble Plot -- 3-9 -- Apple
Change Maker -- 1-6 -- Commodore
Demolition Division -- 3-9 -- Apple, Commodore
Dragon Mix -- 2-8 -- Apple, Commodore

Title -- Grade Level -- Hardware

Math - Arithmetic (con't)

Factoring Whole Numbers -- 2-9 -- Apple
Fraction Fever -- 1-9 -- Commodore
Interpreting Graphs and Tables -- 4-8 -- Apple, TRS 80
Math for Everyday Living -- 6-10 -- Commodore
Math Word Games -- 4-6 -- TRS 80
Meteor Multiplication -- 3-9 -- Apple, Commodore
Percentage: A Review Course -- 7-12 -- Apple
Pinball Math -- 1-6 -- Commodore
Telling Time Computer Set -- K-3 -- TRS 80

Science

Chem Lab Simulations #3 -- 11+ -- Apple
Electric Field -- 11-12 -- Apple
Gas Laws and Kinetic Molecular Theory -- 8+ -- Apple
Simple Machines -- 5-12 -- Apple

Social Studies

Geo Terms Program: United States -- 5-8 -- Apple
Lincoln's Decisions -- 7+ -- Apple
Regions of the United States -- 6+ -- Apple

Word Processing - Authoring

Bank Street Writer -- 4-12 -- Apple, Commodore
Vanilla Pilot -- 5+ -- Commodore

PROGRAM LISTING BY GRADE LEVEL

Grade Level -- Title -- Subject -- Hardware

K-1 -- Early Games for Young Children -- Keyboarding -- Apple, Commodore
K-2 -- Reading Readiness -- Number and Letter Identification -- TRS 80
K-3 -- Alphabet Zoo -- Letter Identification -- Commodore
K-3 -- Kids on Keys -- Keyboarding -- Commodore
K-3 -- Mr. Long and Mr. Short -- Reading -- TRS 80
K-3 -- Telling Time Computer Set -- Math -- TRS 80
K-3 -- Working with the Alphabet -- Learning Letters -- Apple
K-6 -- Facemaker -- Memory Skills -- Apple
K-12 -- KoalaPad Illustrator -- Art -- Apple, Commodore
1-3 -- Beginning and Ending Sounds -- Reading -- TRS 80
1-6 -- Alligator Mix -- Math -- Apple, Commodore
1-6 -- Change Maker -- Math -- Commodore
1-6 -- Pinball Math -- Math -- Commodore
1-9 -- Fraction Fever -- Math -- Commodore
1-9 -- Gertrude's Puzzles -- Logic -- Apple
2-7 -- Thinking Skills -- Logic -- TRS 80
2-8 -- Dragon Mix -- Math -- Apple, Commodore
2-9 -- Factoring Whole Numbers -- Math -- Apple
2-10 -- Spellagraph -- Spelling -- Commodore
2-10 -- Spellicopter -- Spelling -- Commodore
3-6 -- English Basics: Adjectives -- Language Arts -- Commodore
3-6 -- English Basics: Adverbs -- Language Arts -- Commodore
3-6 -- Syllabication -- Reading -- TRS 80
3-9 -- Bumble Plot -- Math -- Apple
3-9 -- Demolition Division -- Math -- Apple, Commodore
3-9 -- Meteor Multiplication -- Math -- Apple, Commodore
3-12 -- Up For Grabs -- Reading -- Commodore
4-6 -- Big Door Deal -- Reading -- Apple
4-6 -- Math Word Games -- Problem Solving -- TRS 80
4-6 -- Punctuation I: End Punctuation -- Writing Skills -- TRS 80
4-8 -- Intermediate Language Arts -- Reading -- Commodore
4-8 -- Interpreting Graphs and Tables -- Math -- Apple, TRS 80
4-8 -- Library Skills -- Language Arts -- Apple
4-12 -- Bank Street Writer -- Word Processing -- Apple, Commodore
4-12 -- Typing Tutor and Word Invaders -- Keyboarding -- Commodore
4+ -- Snooper Troops Case #1 -- Logic -- Apple, Commodore
4+ -- Snooper Troops Case #2 -- Logic -- Apple, Commodore
4+ -- Word Search -- Language Arts -- TRS 80
5-8 -- Geo Terms Program: United States -- Social Studies -- Apple
5-12 -- Simple Machines -- Science -- Apple
5+ -- Vanilla Pilot -- Authoring Program -- Commodore
6-10 -- Math for Everyday Living -- Math -- Commodore
6-12 -- Winning with Phonics -- Reading -- TRS 80
6+ -- Computer Literacy -- Social Studies -- Apple
6+ -- Regions of the United States -- Apple
6+ -- Understanding Computers -- Social Studies -- Apple
7-12 -- Algebra I -- Math -- Apple
7-12 -- Art Volume 1 Perspective -- Art -- Apple
7-12 -- Percentages: A Review Course
7+ -- Lincoln's Decisions -- Social Studies -- Apple
8+ -- Gas Laws and Kinetic Molecular Theory -- Science -- Apple
11-12 -- Electric Field -- Science -- Apple
11+ -- Chem Lab Simulations #3 -- Science -- Apple

PROGRAM LISTING BY HARDWARE FORMAT TESTED

The Apple II, (II+ and IIe)

Title -- Grade Level -- General Subject

Algebra I -- 7-12 -- Math
Alligator Mix -- 1-6 -- Math
Art Volume 1 Perspective -- 7-12 -- Art, Math
Bank Street Writer -- 4-12 -- Word Processing
Big Door Deal -- 4-6 -- Reading
Bumble Plot -- 3-9 -- Math
Chem Lab Simulations #3 -- 11-14 -- Science
Computer Literacy -- 6+ -- Social Studies, Language Arts, Computer Literacy
Demolition Division -- 3-9 -- Math
Dragon Mix -- 2-8 -- Math
Early Games for Young Children -- K-1 -- Keyboarding, Computer Literacy
Electronic Field -- 11-12 -- Science
Facemaker -- K-6 -- Memory Skills, Intro Programming
Factoring Whole Numbers -- 2-9 -- Math
Gas Laws and Kinetic Molecular Theory -- 8+ -- Science
Geo Terms Program: United States -- 5-8 -- Social Studies
Gertrude's Puzzles -- 1-9 -- Logic, Keyboarding
Interpreting Graphs and Tables -- 4-8 -- Math
KoalaPad Illustrator -- K-12 -- Art
Library Skills -- 4-8 -- Language Arts
Lincoln's Decisions -- 7+ -- Social Studies
Meteor Multiplication -- 3-9 -- Math
Percentages: A Review Course -- 7-12 -- Math
Regions of the United States -- 6+ -- Geography
Simple Machines -- 5-12 -- Science
Snooper Troops Case #1 -- 4+ -- Logic
Snooper Troops Case #2 -- 4+ -- Logic
Understanding Computers -- 6+ -- Social Studies, Language Arts, Computer Literacy
Working with the Alphabet -- K-3 -- Learning Letters

Commodore 64

Title -- Grade Level -- General Subject

Alligator Mix -- 1-6 -- Math
Alphabet Zoo -- K-3 -- Letter Identification
Bank Street Writer -- 4-12 -- Word Processing
Change Maker -- 1-6 -- Math, Counting
Early Games for Young Children -- K-1 -- Keyboarding, Intro to Computers
Demolition Division -- 3-9 -- Math
Dragon Mix -- 2-8 -- Math
English Basics: Adjectives -- 3-6 -- Language Arts
English Basics: Adverbs -- 3-6 -- Language Arts
Fraction Fever -- 1-9 -- Math
Intermediate Language Arts -- 4-8 -- Language Arts, Reading
Kids on Keys -- K-3 -- Reading, Keyboarding
KoalaPad Illustrator -- K-12 -- Art

Commodore 64 (con't)

Title -- Grade Level -- General Subject

Math for Everyday Living -- 6-10 -- Math
Meteor Multiplication -- 3-9 -- Math
Pinball Math -- 1-6 -- Math
Snooper Troops Case #1 -- 4+ -- Logic
Snooper Troops Case #2 -- 4+ -- Logic
Spellagraph -- 2-10 -- Spelling
Spellicopter -- 2-10 -- Spelling
Typing Tutor and Word Invadors -- 4-12 -- Keyboarding and Typing
Up for Grabs -- 3-12 -- Reading, Spelling
Vanilla Pilot -- 5+ -- Authoring Program

TRS 80

Title -- Grade Level -- General Subject

Beginning & Ending Sounds -- 1-3 -- Reading, Spelling
Interpreting Graphs and Tables -- 4-8 -- Math
Math Word Games -- 4-6 -- Problem Solving, Math
Mr. Long and Mr. Short -- K-3 -- Reading, Spelling
Punctuation I: End Punctuation -- 4-6 -- Writing Skills
Reading Readiness: Visual Discrimination -- K-2 -- Number and Letter Identification
Syllabication -- 3-6 -- Reading, Spelling
Telling Time Computer Set -- K-3 -- Math, Basic Number Skills
Thinking Skills -- 2-7 -- Logic, Problem Solving
Winning with Phonics -- 6-12 -- Reading, Spelling
Word Search -- 4+ -- Language Arts

TITLE: Algebra I
Intended Audience: Junior high algebra students or grades 7 to 12
Curriculum: Math
Instructional Method: Tutorial with drill and practice enforcement
Hardware Format Tested: Apple II
Producer: Science of Learning
Distributor: Peachtree Software Inc. and Edu-Ware Inc, 22222 Sherman Way, Suite 203, Canoga Park, CA 91303
Cost: $41

Stated Objectives

Nothing unusual in the objectives or format with this program. Students are taken through a series of problems requiring the use of formula-logic and reasoning common to algebra. This program is the first in a series and therefore the most basic.

Teacher Evaluations

One ninth grade math teacher spent three hours with this program before completing the evaluation form. The teacher had used five different microcomputer software programs prior to this evaluation, but had attempted only one program in connection with his students in class.

The teacher gave the program average to above average grades (A's and B's) for meeting its stated objectives, being accurate in content, providing sufficient review and practice, and giving the student a clear evaluation of his work. Although the teacher noted that the program was very clearly written and had nice graphics, the teacher gave the program one of the few failing grades for "likely to arouse student interest."

The teacher noted some confusion that could result from some problems using "I" and "O" in some problems where the letters could be mistaken for a one or a zero. "S's" looked like "5's" also. The teacher felt that some of the problems were too simple even for this volume 1 of the series, "I had a general math student running the post test very easily."

Overall the teacher rated this program as supplemental with a numerical rating of "70."

Student Evaluations

Seven ninth grade students, average age 15, spent an average of 25 minutes each with the program. This was only the second or third educational software program for any of the students and this should be kept in mind as the students did not reflect the anticipated boredom that the teacher predicted. We don't know if it was because they had their first chance to experience a program or if the program was really exciting for them, but five of the students (71%) indicated a desire to run the program again, six of the students recommended the program to their friends, and only one student agreed with the statement "this program was a waste of my time."

The students had very little difficulty operating the program. None of the students indicated they got lost or didn't know what to do. The students tended to agree with the teacher's point that this program might be a bit too easy as all of them disagreed with the statement, "this program is too hard," and five of the seven agreed with the statement, "this program was too easy for me."

Three of the students provided some clear indication of the merits of this program through the written comments they gave us:

> "I remember the clear and easy to understand statements, the program was not difficult to follow."
>
> "The questions in this program were made for someone of a lesser knowledge of algebra...it makes algebra easier."
>
> "sets...I did't understand them and it kept giving me more and more problems until I understood."

Overall, the students gave this program an averaged rating of "69," just one point from the teacher's rating of "70."

TITLE: Alligator Mix
Intended Audience: Grades 1-6
"students of all ages requiring practice in arithmetic facts using numbers 0 through 9"
Curriculum: Math
Instructional Method: Drill and Practice, Game
Hardware Format Tested: Apple II and Commodore 64
Producer and Author: Developmental Learning Materials, Allen, TX 75002, Jerry Chaffin and Bill Maxwell
Distributed by Filmcraft Audiovisuals, Att: Hank Glesing, 5323 W 86, Indianapolis, IN 46268

Stated Objectives

Alligator Mix "will help students increase their skill in both adding and subtracting numbers 0 through 9 by feeding alligators in the swamp. As alligators appear in the swamp, apples with addition and subtraction problems move toward the alligator's mouth. Answers appear in the stomach of the alligator. As the apple with the problem approaches the alligator's mouth, the player must determine if the answer in the alligator is the correct one for the approaching problem. If so, the player opens the alligator's mouth by pressing one of the designated keys or paddle option to allow it to eat the apple. If the alligator is fed an incorrectly matched problem, it will suffer the effects of a "bad" apple; if a correct match is made, the alligator will tell the player how good the meal was. If the student misses giving the alligator a good apple, it will grumble. If a no-match is correctly determined by the player, the apple will spin and disappear. Five alligators will appear in the swamp in a single game and be fed ten apples each. The speed of the "feeding" of the alligators increases as more alligators appear. Hits and misses are recorded in the swamp at the bottom of the screen. This program is especially good for generalization of both addition and substraction skills."

Teacher Evaluations

Seven third grade teachers evaluated Alligator mix. All had experience with microcomputer software prior to the evaluation as each had used at least seven programs in the classroom.

The teachers spent an average of 22 minutes working with the program before completing an evaluation form.

All of the teachers gave the program the highest grade possible for "likely to arouse student interest." Average grades were given for "learner responses require thought and are a challenge," and "this program provides a clear evaluation of the student's performance."

Teachers gave the following comments concerning the programs's strengths:
"...the program can be adjusted to meet the individual needs..."
"This program arouses student interest...students asked to use this program for indoor recess, and we did..."
"The students love it."
Teachers gave the following comments concerning the program's weaknesses:
"The program doesn't show the elapsed time of the game and the student's evaluation should be done in percentages."
"I would prefer that the program give some written instructions for students to read at the beginning of the program...for example, notice that the space bar controls the alligator's mouth."

One teacher noted how the program would be used in third grade classes. "My students and I really work on Math speed drills. I would allow students to work in pairs on this program. My students became very competitive when it came to Alligator Mix. They wanted to do better every time, and they wanted to do better than the person before them. I would not add materials to the program. The papers and the flashcards make the program available to more kids in the class and allow them to drill each other, but are not essential to the operation of the software. This program is more motivational than Math Speed Drill."

The seven teachers agreed that "this microcomputer program supports and enhances my current materials and would provide basic support to the instruction of the skills I require of my students."

Overall, the teachers rated this program at "89," slightly higher than the average overall rating for all of the programs field tested, "73."

Student Evaluations

Forty-three students completed evaluation forms. Two groups were identified as having common characteristics and were large enough to compare their reaction to the program. One group was composed of twenty fifth graders who had experience with ten or more programs prior to the field test. The other was a group of 23 third graders who were working with their first microcomputer program. The average time spent with the program by any of the 43 students was eight minutes.

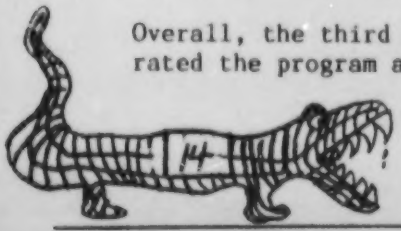
There was no major difference of opinion between the two groups concerning agreement with such statements as, "I'd like to do this program again," and "I think my friends would enjoy this program." In both groups, over 90% of the students agreed.

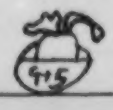
Differences were seen in a few other areas however. All of the fifth graders disagreed with the statement, "I really had to think in order to get the right answer." Only eight of the third graders or 35% disagreed.

The fifth graders had been run through the program individually without any group competition. A majority of the fifth graders (65%) agreed with the statement, "I would rather work on this program by myself than with other classmates." Only 35% of the third graders agreed with the statement as they experienced the program working in small groups and competing for the highest score. In addition, these third graders may have depended upon each other for determining how the program worked since it was the first such program for most of them.

We have to wonder if the teachers took advantage of the program's options for more difficult problems and faster pacing. Seventy percent of the fifth graders agreed that, "This program was too easy for me." Only 22% of the third graders agreed with that statement.

Overall, the third graders rated the program at "73" and the fifth graders rated the program at "90."





TITLE: Alphabet Zoo
Intended Audience: Grades K-3
Curriculum: Letter Identification, Keyboarding, Spelling
Instructional Method: Drill and Game
Hardware Format Tested: Commodore 64, also available in Atari
Producer and Author: Spinnaker, 215 First Street, Cambridge, MA 02142; Dale Disharoon
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $35

Stated Objectives

"Alphabet Zoo contains two exciting maze games that are fun and educational. Colorful pictures and delightful music accompany both parts of the program. In 'The Letter Game' kids race through the maze to capture the first letter of the picture shown in the middle of the screen. 'The Spelling Game' challenges young players to pick up the letters in the correct order to spell the word pictured on the screen. Alphabet Zoo helps children strengthen their letter recognition skills as they associate letters of the alphabet with the sounds that they represent. The game also sharpens spelling skills and makes spelling fun for the child."

Teacher Evaluations

One first grade teacher evaluated this program. The teacher had examined ten or more microcomputer programs prior to the field test, and had used three programs in the clasroom prior to the evaluation.

The teacher spent 28 minutes with the program.

The teacher gave the program "A's" for "likely to arouse student interest," "learner responses require thought and are a challenge," and "program is suited for its intended audience."

Average grades were given for "relevant practice or testing is consistently provided," and "feedback is consistent and provides remediation."

Below average grades were given for "graphic information is clear." The teacher added, "all of the children had to ask at some point, 'What is that picture?' before working the maze."

The teacher also wrote, "the high interest of the children was a major strength in the whole process as they were excited about using the computer... the program continued their initial excitement as they took turns using the program."

"The program would be best introduced," according to this teacher, "in kindergarden. Then allow first and second graders to use it for independent work and remediation. The students could see their score improvements by charting them over a semester...show higher points and faster times."

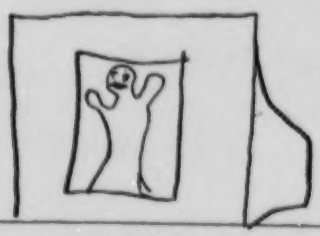
Overall, this teacher gave the program an exceptionally high "95."

Student Evaluations

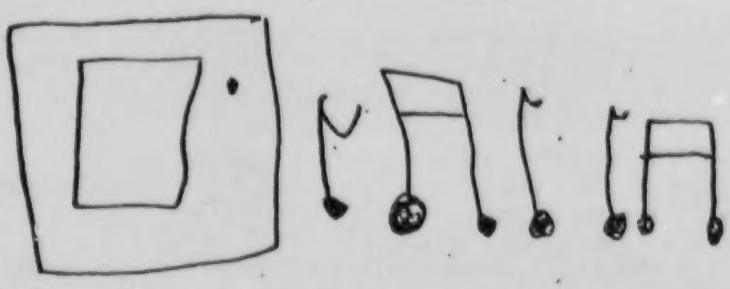
Nineteen first graders reacted to this program. All of them were working their first microcomputer program as they experienced Alphabet Zoo.

All of the students wanted to do the program again. This is not too surprising since each student was just getting a taste of the computer and allowed only 15 minutes to experience the program. Only one student disagreed with, "I think my friends in class would like to do this program." All of them agreed, "I could do this program without help from my teacher."

PICTURE # ONE:



PICTURE # ONE:



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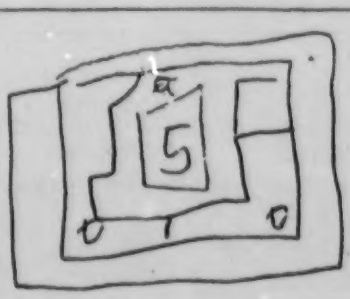


TITLE: Art Volume 1 Perspective
Intended Audience: Grades 7-12
Curriculum: Art, Drafting, Math
Instructional Method: Skills practice, Tutorial
Hardware Formate Tested: Apple II
Producer and Author: Educational Audio Visual, Ken Ellis
Distributed by EAV, Pleasantville, NY 10570
Cost: $44

Stated Objectives

"Art Volume 1 is an introduction to the study of perspective. It is designed to be used by students in art, industrial arts, beginning drafting, solid geometry and other related courses under the guidance of the teacher. Structured as tutorials, the computer programs add content information to drill and practice exercises. Computer graphics demonstrate the drawing of simple boxes in one and two point perspective. Students are tested after each concept and are expected to master one concept before advancing to a new one. The program instructs in the beginning vocabulary needed to understand the subject. Accompanying handouts, coded to the appropriate sections of the computer programs, assist students in recording new terms and definitions, reviewing problem areas, and drawing what they see on the screen."

Teacher Evaluations

Two high school art teachers examined this program. Both of the teachers indicated experience with six microcomputer programs prior to the evaluation, and neither had used a program in the classroom with their students.

The teachers worked with the program for 15 minutes each before completing the evaluation form.

The teachers gave the program high grades for "meets is own stated objectives," "content of the program is accurate," "this program provides sufficient review," and "relevant practice or testing is consistently provided."

Below average grades ("C" and "D") were given for "the program provides a clear evaluation of the student's performance."

Both teachers noted the excellent definition of a wide variety of terms related to perspective. Excellent examples were also given by the program, but both teachers felt the program needed to allow the student to draw on the screen in order to be more effective.

The teachers rated the program as basic to the art curriculum.

Overall, the two teacher's averaged rating score was "87."

Student Evaluations

Twelve ninth graders evaluated this program. All of the students had experience with fewer than three programs prior to this field testing.

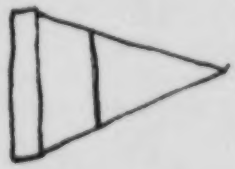
The students invested a great deal of time working with the program. On the average, each student worked with the program for 90 minutes. The average amount of time given to a program from the entire field tested by students was 35 minutes.

Two of the students indicated they got bored and left before completing the program, although both had invested nearly two hours with the program before deciding to leave. Keeping in mind this high investment of time, only 17% of the students indicated they would like to do the program again. Only half of the students agreed, "I think my friends would enjoy this program."

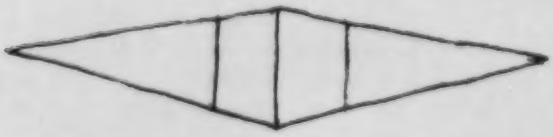
All of the students indicated there was no problem in working through the program with very little assistance from the teacher. All disagreed with the statment, "I got lost in this program and didn't know what to do."

Students gave this program an averaged rating of "68."

Major idea remembered # one: one point perspective



Major idea remembered # two: two point perspective



TITLE: The Bank Street Writer
Intended Audience: Grades 4-12
Curriculum: Composition, Word Processing
Instructional Method: Practice and Tutorial
Hardware Format Tested: Commodore 64 and Apple II
Producer and Author: Scholastic, Inc., 730 Broadway, New York, NY 10003; Franklin E. Smith and Bank Street College for Intentional Educations
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $70

Stated Objectives

"Fully tested with young writers at Bank Street College of Education, The Bank Street Writer arrives ready to go to work turning repetitious chores into successful writing...spelling...grammar...and punctuation activities for students in grades 4-12....Enhanced interactive tutorial, designed specially for school use, shows both you and your students just how the program works.... Students correct, revise, reorganize, rearrange their own sentences and paragraphs, all with ease. Lends itself to teacher-created exercises: sentence-combining, open-ended dialogues, fill-in-the blanks... so you can connect your writing program to your own textbooks or to student's own writing."

Teacher Evaluations

Four middle school teachers and media specialists evaluated this program. Three of the teachers had experience with ten or more programs prior to the evaluation of this program, and the other teacher was working with his or her first program when completing this field test.

On the average, the four teachers invested 50 minutes with the program.

Bank Street Writer, which has received much praise and very positive reviews over the past two years, was also graded very highly by the four teachers. High grades (A's) were given by all of the teachers for "program meets its own stated objectives," "verbal and graphic information is well paced and clear," and "documents and printed guides give sufficient support."

A few average to below average grades (C's and D's) were given for "this program is likely to arouse student interest," and "learner responses require thought and are a chllenge."

All of the teachers saw the value of this program in introducing word processing skills and exercises. The program also aids the teacher or main office in producing letters to parents, the daily bulletin or other simple notes that need to be produced and kept in an electronic file.

The teachers gave the program a high overall rating of "92."

Student Evaluations

Eleven middle school students examined this program. Three of the eleven had prior experience with ten or more programs, while the rest had fewer than five such previous experiences. Three of the students were working their first

microcomputer software with this field test.

On the average, the students worked with The Bank Street Writer for 80 minutes each.

Even though clear directions are given, all of the students felt the need for the teacher to be with them to assist as they worked through the exercises. None of the students indicated, however, that they ever got lost. Only five (45%) of the students agreed with the statement, "I think my friends would enjoy this program."

The students gave the program a below average rating of "66."

TITLE: Beginning & Ending Sounds
Intended Audience: Grades 1-3
Curriculum: Reading and Spelling
Instructional Method: Tutorial
Hardware Formate Tested: TRS 80
Producer and distributed by Little Bee Educational Programs, P O Box 262, Massillon, OH 44648
Cost: $12

Stated Objectives

"This program helps in the development of the recognition of initial and final consonant sounds. The student is presented with a word and a part of a word that is missing either its beginning or ending sound. Also on the screen are 3 letters, one of which will make a new word. Below these 3 letters is an arrow, which the student can move under one of the letters. When the arrow is under the letter that makes a new word, the student hits the ENTER key. If the student is incorrect, the arrow misses the bullseye. A session consists of ten words at the end of which the student has the option of continuing for an additional ten words until thirty words have been completed. There are 66 words included in this program. Scoring is given at the end of the session."

Teacher Evaluations

Four first and second grade teachers evaluated this program. All indicated experience with ten or more microcomputer programs prior to the evaluation. All indicated experience with six or more programs in their classroom with their students.

The teachers gave an average of 12 minutes to the examination of the program before completing the evaluation form.

Beginning & Ending Sounds received high grades in most of the areas graded. Three or four A's were given for "program meets its own stated objectives," "content of the program is accurate," and "the program provides a clear evaluation of the student's performance." Above average grades (A's and B's) were given for "program is likely to arouse student interest," "relevant practice or testing is consistently provided," "learner responses require thought and are a challenge."

One teacher commented, "The title indicates the program tests beginning and ending sound recognition. In reality it checks initial and final consonant substitution. Substitution requires reading ability, sound recognition does not."

All four of the teachers were willing to use the program in the classroom to reinforce phonics skills and to support the remedial reading teacher.

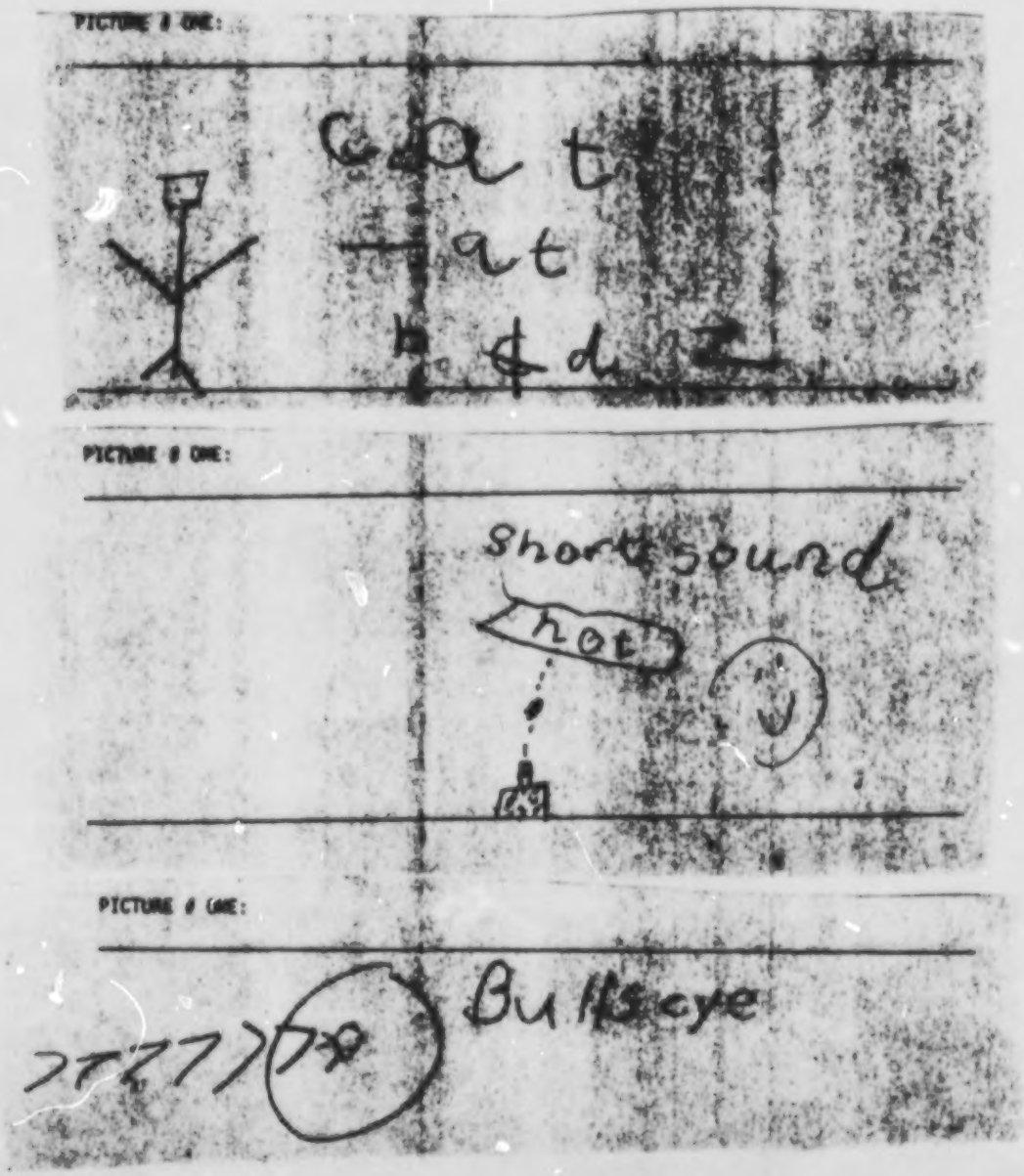
Overall, the teachers gave the program an averaged rating of "68."

Student Evaluations

Twenty students completed evaluation forms using the K-2 questions where the teacher read the statement and the student marked a happy or sad face. All of the students were from the first grade and had worked with five or more microcomputer programs prior to this field test.

Each student worked with the program for an average of ten minutes before responding to the questions.

All twenty agreed with the three statements given, "I would like to do this program again," "I think my friends in class would like to to this program," and "I could do this program without help from my teacher."



TITLE: Big Door Deal
Intended Audience: Grades 4-6
Curriculum: Reading
Instructional Method: Game
Hardware Formate Tested: Apple II
Producer and Author: Data Command, Kankakee, IL 60901
Cost: $114

Stated Objectives

"A takeoff on a popular TV game show, Big Door Deal lets the student earn valuable points toward big 'grand prizes' by using reading skills to open the right doors. Three doors appear on the computer screen. Below the doors is a question or incomplete statement. On each door is a possible right answer. If the student chooses the door with the right answer, the door opens and he finds that he's earned one point toward the big grand prize."

Teacher Evaluations

Nine elementary school teachers and media specialists evaluated this program; one of the largest teacher evaluation groups for the field testing. All of the evaluators indicated a great deal of experience with microcomputer software. All nine indicated they had utilized ten or more programs in the classroom prior to this evaluation.

Each teacher spent an average of 23 minutes with the program.

The teachers gave the program above average grades (A's and B's) for "content of the program is accurate," "verbal and graphic information is well paced and clear," and "learner responses require thought and are a challenge." Average grades (B's and C's) were given for "this program is likely to arouse student interest," "feedback is consistent and provides remediation," and "printed documents and guides give sufficient support." Below average grades (C's and D's) were given for "relevant practice or testing is consistently provided," "this program provides sufficient review without unnecessary redundancy," and one teacher gave the program a failing mark for "the program provides a clear evaluation of the student's performance."

Strengths noted by the teachers included the following:

> "Excellent builder of thought processes. Goes into context clues, sequencing and figurative language of which students need more."
> "It gave practice in analogies."
> "Keeps the student's interest...this program challenges the children and they have to think through the sentences to sequence them."

Weaknesses were also given by the teachers:

> "It seems too easy for the average fifth grader."
> "...graphics are not very interesting even if the student does well and waits for his reward in terms of new graphic..."
> "...makes it fun to fail in order to see what the 'prizes' are; a correct answer gets 'correct' flashed on the screen and an incorrect answer receives a 'pickled papaya' or a tangled kit string..."

One teacher noted that "this program provides excellent practice for the achievement (IQ) test taken every spring."

Another teacher wrote, "...can be used in almost every subject area... helps to improve thinking skills."

Two of the teachers compared the program to other materials on hand and decided the software package was only supplemental material, while two other teachers indicated that this program was essential to the development of or introducing a new area of the curriculum. Five of the evaluators agreed that, "This microcomputer program supports and enhances my current materials and would provide BASIC support to the instruction of the skills I require of my students."

The teachers gave the program an overall averaged rating of "87," well above the average rating of the entire pool of programs tested at "73."

Student Evaluations

Forty-three third, fourth and fifth graders worked with Big Door Deal. Of this group, 18 were fifth graders with experience in eight or more previous software programs, 15 were fourth graders with experience in less than four programs each, and 10 were third graders with all of them having experience with six or more programs.

The fifth graders averaged only eight minutes with the program before completing an evaluation form. The fourth graders averaged 17 minutes each and the third graders averaged 17 minutes.

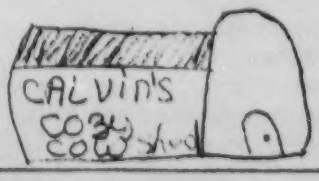
When asked if they would like to do the program again, 100% of the fifth graders agreed, 100% of the fourth graders agreed, and 70% of the third graders agreed. Forty percent of the third graders said they got lost and didn't know what to do. None of the fourth or fifth graders felt they got lost. Eighty-seven percent of the fourth and fifth graders agreed with the statement, "Compared to other times I have studied this subject, this program was fantastic," while only 40% of the third graders agreed.

An exceptionally high percentage (77%) of the total student group agreed with the statement, "I would like to be graded by my teacher on the work I did with the program."

Overall, the 43 students gave the program an averaged rating of "79."

Major idea remembered # two: Football is to field as basketball is to court.

One of the prizes was to go to Calvin's Cozy Cowshed



Major idea remembered # one: I remember when I missed a problem I liked the prizes like a stray ashtray.

TITLE: Bumble Plot
Intended Audience: Grades 3-9
Curriculum: Math
Instructional Method: Drill and Practice, Tutorial, Educational Game, and Problem Solving
Hardware Format Tested: Apple II, also available in TRS 80
Producer and Author: The Learning Company, 545 Middlefield Rd, Menlo Park, CA 94025; Leslie Grimm
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $40

Stated Objectives

"In Bumble Plot children use positive and negative numbers to name points in four quadrant grids. Plotting number pairs is a basic math skill for the computer age. Children need this skill to understand and build charts and graphs, to locate places on a map, and to design computer graphics. While trapping robbers and discovering underwater treasure, children learn advanced math skills...by plotting positive and negative numbers on increasingly complex grids."

Teacher Evaluations

Three elementary school teachers with a great deal of previous experience among them in computer assisted instruction evaluated this program. Each of the three had worked with ten or more programs in the classroom prior to this evaluation. All three teach the third and fourth grades.

Each teacher spent an average of 35 minutes with the program prior to completing an evaluation form.

Bumble Plot did receive from all three teachers average to above average grades (B's and C's) for "suited for its intended grade level" and "meeting its own stated objectives." The teachers also gave the program high marks (A's and B's) for "learner responses require thought and are a challenge," but gave written comments to emphasize that there is a great lack of variety and challenge after getting through the game once. The program was given below average grades for "arousing student interest" and "being well paced."

One teacher suggested, "a geoboard would come in handy for the pictures program," and that he or she would "also include a gameboard and player pieces to enhance the understanding of the positive and negative number concepts."

Generally, the program has received very positive reviews, but these teachers gave Bumble Plot an average rating of "70."

Student Evaluations

Six fourth graders spent an average of 24 minutes with Bumble Plot. Each had worked with at least six educational computer program prior to evaluating this program.

Generally, there seemed to be little excitement about the program, but a willingness to run the program through once and be satisfied. All of the students felt that his program was "ok" but not "fantastic." A majority of the students felt that their friends would not enjoy the program. None of the students wanted to take the program home. This is a major rejection of the program since the tendency for these first programs field tested was to agree (63%) that if given the chance the student would take the program home to work on it more.

Overall, the students gave Bumble Plot an averaged rating of "79."

Additional Research Assistant Comments

This program provides a "good incentive to learn grid positioning; the graphics are good, the sound is exciting, and the games are fun." However, the program is "too easy for older students" in the 12 to 13 age range.

TITLE: Change Maker
Intended Audience: Grades 1-6
Curriculum: Math, Counting
Instructional Method: Skills Practice
Hardware Format Tested: Commodore 64, also available for Apple II and TRS 80
Producer and Distributor: Micro Learningware, Box 307, Mankato, MN 56001
Cost: $23

Stated Objectives

"Gives practice in making change based on randomly selected purchase and payment amounts."

Teacher Evaluations

No teacher evaluation forms were completed for this program.

Student Evaluations

Twenty-two fifth graders evaluated this program. All but two of the students had worked with fewer than three microcomputer programs prior to the field test.

The students worked with the program for an average of nine minutes before completing an evaluation form.

The fifth graders tended to imply that the program was too difficult for them. Only a slight majority (55%) wanted to do the program again, even after working for less than ten minutes with it. Forty-one percent of the students agreed, "This program is too hard." This is an exceptionally high agreement rate compared to the normal 9% from the entire pool of students involved in the field testing. Three students stopped the program early because they "got bored." Others did not work beyond ten minutes because the class schedule prevented it.

An exceptionally high 64% agreed, "I got lost and didn't know what to do." An exceptionally high 86% agreed, "I really had to think in order to get the right answer." A third of the group agreed, "This program was a waste of my time."

Overall, the fifth graders gave the program a low rating of "36."

A second group of students, eight eighth graders, examined the program. Of the members of this group, only one had worked with more than five program prior to the evaluation.

The teacher put the restriction on this group that each student could work only two problems. This meant that each student experienced the program for no longer than five minutes.

None of the students agreed with the statement, "I think this program is too hard." Only one agreed, "I got lost and didn't know what to do." Half of the students agreed, "I really had to think in order to get the right answer."

Overall, the eighth graders gave the program Change Maker a below average rating of "60."

Major idea remembered # one:

"Find the most efficient way to give back the change. (They are very picky about that.)

Major idea remembered # two:

The program is not user friendly.

Major idea remembered # one:
Give change to customer

Major idea remembered # two:

It was boring

Major idea remembered # two: Dealing with money and giving change.

Major idea remembered # one: You have to use your brain

TITLE: Chem Lab Simulations #3
Intended Audience: Grades 11 to college
Curriculum: Chemistry
Instructional Method: Simulation
Hardware Format Tested: Apple II
Producer and Author: High Technology Software Products, Inc., and Oklahoma State University
Distributed by High Technology, Inc., P O Box 60406, 1611 NW 23, Oklahoma City, OK 73146 and by Cambridge Development Lab, 100 Fifth Av, Waltham, MA 02154
Cost: $103

Stated Objectives

"The object of this simulation is to support Hess' Law. According to Hess' Law, if two or more reactions can be summed to give an overall reaction, then the sum of the heats of reaction of the individual reactions will equal the heat of reaction for the overall reaction.

Four experiments in calorimetry are simulated:
1. measuring the heat capacity of the calorimeter
2. measuring the heat of neutralization of HCI_{aq} and $NaOH_{aq}$
3. measuring the heat of solution of $NaOH_s$
4. measuring the heat of reaction of HCI_{aq} and $NaOH_s$."

Teacher Evaluation

One high school chemistry teacher evaluated this program. The teacher had worked with four programs prior to the field testing, but had never attempted to use a microcomputer program with his students.

The teacher graded the program at the "A" level for "content of this program is accurate," "verbal and graphic information is well paced and clear," "learner responses require thought and are a challenge," "documents and printed guides give sufficient support," and "the program provides a clear evaluation of the student's performance."

Above all, the teacher indicated pleasure that it was possible for the "student to do the program himself...directions are well given."

One problem the teacher noted was that in his opinion, "if a student doesn't finish all four sections, he can't come the next day and start where he left off."

The teacher was ready to accept the program as a class demonstration on heat energy and then to assign students to work through the program independently.

The teacher gave the program an overall rating of "90."

Student Evaluations

Five students, juniors and seniors, spent an average of 45 minutes each with this program prior to completing an evaluation form. One student indicated experience with four microcomputer programs prior to the field testing of this program, but the other four indicated no experience with microcomputer educational software.

All of the students agreed that, "I'd like to do the program again," and all agreed with the statement, "Compared to the other times I have studied this subject, this program was fantastic."

None of the students felt that the program was too long nor too hard. All of the student agreed with the statement, "I think my friends would enjoy this program." None of the students agreed with the statement, "this program was a waste of my time."

Only one of the five felt that he or she could "do this program without help from my teacher."

One student wrote the following statement to describe what he or she had learned, "I was to record the initial temperature of the hydrochloric acid. Then record the final temperature after the sodium hydroxide pellets were added to the HCI solution. Then using the information given by the computer, I was to calculate the amount of energy released in the reaction..." Another student put it in simple, yet true, terms, "...accuracy is important."

Overall, the five students gave the program an averaged rating of "87."

TITLE: Computer Literacy
Intended Audience: Grades 6 and up
Curriculum: Social Studies, Language Arts, Computer Information
Instructional Method: Tutorial
Hardware Format Tested: Apple II
Producer and Author: Control Data Corporation, San Diego, CA; adapted from the PLATO course "Introduction to Computers" by John Aikin and Greg Starling
Distributed by Shoemaker's Motion Picture Co., Att: Randy Shoemaker, 3901 Meadows Drive, Indianapolis, IN 46205
Cost: $48

Stated Objectives

"The Computer Literacy activity is intended to introduce computers to the student. The activity provides information on the history and uses of computers and on some issues facing a computerized society. The Computer Literacy activity contains six lesson sections. These sections include instructional text, animated examples, and interactive activities designed to increase a student's understanding of computers."

Teacher Evaluations

Two junior high school media specialists evaluated this program. Both were in charge of a computer lab and responsible for teaching units lasting six to nine weeks on the introduction of microcomputers to students in the ninth grade. Both media specialists had experience with at least seven programs prior to this evaluation.

Both spent over 45 minutes examining the program prior to completing the evaluation form.

Computer Literacy received high grades for meeting its own stated objectves and received an "A" from both evaluators for "content of the program is accurate."

Both media specialists gave the program very low grades (D's) for "learner responses require thought and are a challenge." The major weakness of the program seemed to be in the instructional approach. "Too often students can continue to push the return key and skim the program," wrote one evaluator, and the other commented, "Not many keys used except 'RETURN'...what about the rest of the keyboard?" Finally, this additional comment of interest, "A lot of text...a book would do just as well as this presentation."

The media specialists also noted that much of the presentation was "too cutesy" with such items in the program as "Robot, play a little funky disco for me."

Comments concerning strengths of the program did not concern the content but the program's container. Control Data has packaged the PLATO series in a strong and attractive plastic container format which fits very neatly on the shelf.

The teachers gave the program an overall rating of "70."

Student Evaluations

Twenty-three students from the ninth grade evaluated Computer Literacy. Each student worked with the program for 30 minutes prior to completing the evaluation form. The students had experience with fewer than five programs prior to this field test.

An exceptionally high percentage of the students (76%) checked that they would not like to do the program again. Only one felt that the program was too hard, but 70% felt that the program was too long.

Over 90% of the students liked the graphics and said the graphics were helpful. The same high 90% found it easy to get through the program without getting lost. Seventy-one percent checked that the program helped when a mistake was made.

Half of the student group would not recommend the program to their friends.

When asked to state facts of information learned from this program, several students noted such things as, "Computers need humans to tell them what to do...," "Computers are helpful in filing large pieces of information...," "Computers are limited by the programmers' skills and the nature of the machine itself...," "Computers are very useful in boring, tedious tasks."

The students gave the program an overall rating of "77."

TITLE: Demolition Division
Intended Audience: Grades 3-9
"students of all ages requiring practice in arithmetic facts using numbers 0 through 9"
Curriculum: Math
Instructional Method: Drill and Practice Game
Hardware Format Tested: Apple II and Commodore 64
Producer and Author: Developmental Learning Materials, Allen, TX 75002, Jerry Chaffin and Bill Maxwell
Distributed by Filmcraft Audiovisuals, Att: Hank Glesing, 5323 W 86, Indianapolis, IN 46268
Cost: $44

Stated Objectives

Demolition Division "gives students an opportunity to practice the division of problems with answers 0 through 9 in a wargame format. Tanks moving from the left side of the screen with problems fire, destroying a wall surrounding the guns on the right side as they move toward them. Answers are placed beside the gun and fired at the approaching tank. If the answer is smaller than correct answer, the fire falls short of the tank; if the answer placed is larger than correct answer, the fire ball falls beyond the tank; and if the answer is the correct one, it destroys the tank. If the tank reaches the gun before being destroyed by the number fired, the tank destroys the gun. Answers are placed next to the guns using the designated keyboard keys. When paddle selection is made, answers appear and must be matched to the problem before firing. Hits and misses are recorded in bunkers at the bottom of the screen."

Teacher Evaluations

One fifth grade teacher with a great deal of prior microcomputer experience evaluated this program. The evaluation, however, is based on only three minutes of actual examination of the program and materials by the teacher.

Based on experience with at least ten other microcomputer programs prior to this evaluation, the teacher gave the program above average grades for "meeting its own stated objectives," and "likely to arouse student interest." The teacher also felt that the program provided a strong format for "requiring thought and a challenge to the students."

The teacher gave the program low grades for "clear evaluation of the student's performance," although the program does provide a tally of the hits and misses. Low marks were also given form "consistent feedback and remediation." The program never claims to give the student the correct answer, but does help the student determine the degree of his or her error by falling short of the target or over shooting it.

The teacher failed to rate the program on a scale of "0" to "100."

Student Evaluatons

Two groups of fifth grades evaluated this program. One group of nine represented students who had no prior experience with educational microcomputer programs and the other group of nine represented a group of students who all indicated experience with ten or more programs.

Between these two groups of students, little difference of opinion existed.

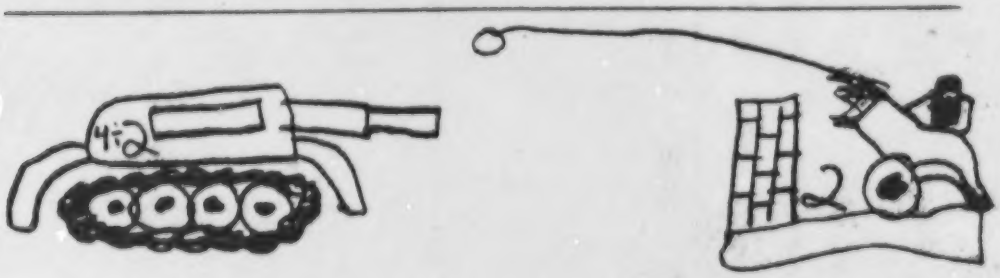
The students from the inexperienced group averaged 16 minutes with the program. Sixty-six percent of the students felt they really had to think in order to get the correct answer and the same percentage indicated that the program gave little or no help when a mistake was made. Sixty-six percent disagreed with the statement, "Compared to other times I have studied this subject, this program was fantastic." Only one of the nine felt secure enough with the program to say that he or she would "like to be graded by my teacher on the work I did with this program."

The inexperienced students gave this program an below average rating of "66."

The students from the experienced group averaged 12 minutes with the program. Sixty-six percent of the students felt that they "really did NOT have to think in order to get the correct answer," and only one student felt that the program helped him or her when a mistake was made. Sixty-six percent did not feel that "compared to other times I have studied this subject, this program was fantastic." Almost half of this group felt "this program was a waste of my time." Only one student felt secure enough with his or her performance to be graded by the teacher.

Overall, the experienced students rated the program a litte lower than the rating from the inexperienced students as their averaged rating was "61."

Major idea remembered # one:



TITLE: Dragon Mix
Intended Audience: Grades 2-8
"students of all ages requiring practice in arithmetic facts using numbers 0 through 9"
Curriculum: Math
Instructional Method: Drill and Practice, Game
Hardware Format Tested: Apple II and Commodore 64
Producer and Author: Developmental Learning Materials, Allen, TX 75002, Jerry Chaffin and Bill Maxwell
Distributed by Filmcraft Audiovisuals, Att: Hank Glesing, 5323 W 86, Indianapolis, IN 46268
Cost: $44

Stated Objectives

Dragon Mix "provides practice in both multiplication of numbers 0 through 9 and division of numbers with answers 0 through 9 using a "protective dragon" theme. A large dragon on the right of the screen is protecting the city behind her from various invading forces. The different types of spacecraft have multiplication and division problems in them as they appraoch the city. Answers appear in the center of the dragon. The player matches the answer to the appropriate problem-carrying spacecraft by aiming the dragon's head at it, and then fires by pressing one of the designated keys or paddle option. If a correct match is made, the fire shot from the dragon's mouth will destroy the invader. If a wrong match is made, the invader will keep coming toward the dragon. If the invader reaches the dragon without being destroyed by the correct answer, it will enter the city and explode. Hits and misses are recorded on the road leading to the city at the bottom of the screen."

"Each diskette is programmed so that you can change the parameters of the game: the skill level of the game (speeds of 1 to 9); the range of the numbers used in the problems, and the number of minutes the program will run."

Teacher Evaluations

Four elementary school teachers, three math teachers and one media specialist, examined this program. Of the four, two had used ten or more programs with a class of students prior to this evaluation, and the other two were examining their third software program with this field test experience.

The teachers gave the program above average grades for "suited for its intended audience," "program is likely to arouse student interest," and "content of this program is accurate." The teachers gave the program average (B's and C's) grades for "learner responses require thought and are a challenge," and "the instructional approach suits the program's content."

Below average grades (C's and D's) were given for "feedback is consistent and provides remediation," and "the program provides sufficient review without unnecessary redundancy."

Despite these low grades, all of the teachers were ready to accept this program into the classroom or media center as a tool for drill and review.

One teacher noted that the program, if speeds are adjusted and the problems are challenging to the student, will require concentration and rapid response. However, the same teacher noted a major weakness, "Students only seem interested in scoring or shooting something down, no matter how many shots it takes...they have no interest in the number of misses...the student would be more careful if the program subtracted misses from the total score."

Overall, the teachers gave the program an averaged rating of "70."

Student Evaluations

Forty-one students from the fourth and fifth grades examined this program. All of the students had prior experience with at least six microcomputer programs.

On the average, the students spent six minutes with the program before completing an evaluation form. The four teachers also invested very little time in the examination of the software before evaluating as they took only 8 minutes.

The students seemed to have little trouble with the program. All but one disagreed with the statement, "I got lost and did't know what to do." All but three recommended the program to their friends.

Eighty-seven percent (exceptionally high compared to the average response of 59%) agreed, "This program helped me when I made a mistake."

Sixty-three percent, a fairly high percentage relative to the other programs, agreed, "I really had to think in order to get the right answer."

Overall, the students rated Dragon Mix at "71."

Major idea remembered # one: Adragon, problems in math, citys, spaceships

Major idea remembered # one: Helps you think.

TITLE: Early Games for Young Children (Nine Learning Games)
Intended Audience: K-1
Curriculum: Introduction to the computer
Instructional Method: Drill and practice, games
Hardware Format Tested: Apple II (also available in Radio Shack, Atari and Commodore 64)
Producer and Author: Counterpoint Software, John Paulson
Distributed by Early Games, Shelard Plaza N 140, Minneapolis, MN 55426
Cost: $31

Stated Objectives

A group of nine games designed to teach children a few basic skills as entry level experience with the computer. Skill drills include matching numbers, counting blocks, adding and substracting stacks of blocks, matching letters, working with the alphabet, typing names, comparing shapes and drawing colorful pictures. "No adult supervision required. Picture menu gives children control."

Teacher Evaluations

Early Games for Young Children has been evaluated and reviewed dozens of times over the past two years. In all cases the reviewers noted this program as a fine early attempt to provide a variety of student controlled programs on one disk for the preschooler. The program always received high marks.

One first grade teacher evaluated this program for us. The teacher indicated a great deal of experience with programs prior to the evaluation as he or she had examined and used in the classroom ten or more.

The teacher worked with the program for 22 minutes before completing the evaluation form.

The teacher gave the program above average grades in the following areas: "this program meets its own stated objectives," "this program is suited for its intended grade level," "the program is likely to arouse student interest," "verbal and graphic information is well paced and clear," and "documents and printed guides give sufficient support."

The teacher noted as a major strength the "picture menu" which allows the student complete control over making the selection of the program.

The teacher described utilization of the program:
"The draw portion gives young children experience in manipulating the computer. It puts the student in control and allows him/her to be creative. I would use this program with readiness students to draw shapes and with more advanced students to develop creativity. I would like to be able to hook up our printer to print the child's finished work and then have him/her create a written story to accompany the picture."

The teacher compared this program to other materials currently available for use in the classroom for teaching the skills presented by marking "this microcomputer program introduces a new concept area and additional skills not currently required of my students and I welcome it as an ESSENTIAL

new part of the instructional unit." Only 11% of the teachers evaluating programs selected the "essential" statement to describe the software being tested.

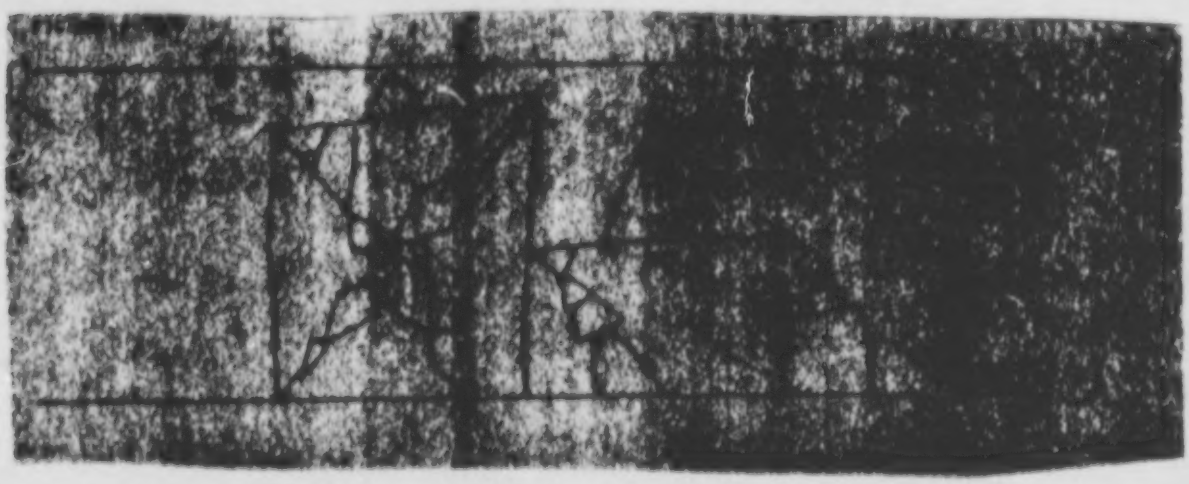
The teacher rated the program at a "90."

Student Evaluations

Fifteen students spent an average of 15 minutes with Early Games for Young Children before responding to questions for the purpose of evaluating the program.

All of the students had experience with seven or more microcomputer programs prior to the evaluation.

The students seemed especially pleased with the chance to draw on the screen. The following questions received a 100% agreement from the 15 first graders: "I would like to do this program again," "I think my friends in class would like to do this program," and "I could do this program without help from my teacher." One student of the 15 disagreed with the statement, "I liked the pictures."



TITLE: Electric Field
Intended Audience: Grades 11-12
Curriculum: Science
Instructional Method: Skills Practice, Simulation
Hardware Format Tested: Apple II+ & IIe
Producer: Cambridge Development Laboratory
Distributed by EduTech, Inc.
Cost: $96

Stated Objectives

"The student moves a test charge (dot) around 2 & 3 fixed-source charges. Whenever the button on a paddle is pressed a short line segment is drawn in the direction of the field at the position of the test charge. In this way students map the lines of force & equipotentials due to 2 & 3 point charges. Average lesson time is 120 minutes."

Teacher Evaluation

One senior high school physics teacher evaluated this program. The teacer had prior experience with eight microcomputer programs and use of six programs in the classroom prior to this evaluation.

The teacher worked with the program for forty minutes before completing the evaluation form.

The teacher gave this program average to below average grades. The only "A" was given for "documents and printed guides give sufficient support."

Average marks were given for "likely to arouse student interest," "relevant practice or testing is consistently provided," and "the program provides sufficient review without unnecessary redundancy." Below average marks were given for "learner responses require thought and are a challenge."

The teacher added, "The program provides good graph interpretation for lines of force and equipotential lines, but the program is colorless, soundless, and generally does not appeal to the student...plus high cost."

The teacher did not name the programs, but he or she felt that this program was the weakest of three similar ones examined.

Overall, the teacher gave this program a rating of "30."

Student Evaluations

Ten students from a senior physics class evaluated this program. This was only the second educational microcomputer program the students had worked with prior to this field testing.

The students worked with the program for an average of 24 minutes each.

None of the seniors felt the program was too hard, 40% agreed that it was too easy. Seventy percent agreed, "I would like to be graded by my teacher on the work I did with this program," and "compared to the other times I have studied this subject, this program was fantastic."

None of the students "got lost in the program and didn't know what to do." None of the students felt that "I really had to think in order to get the right answer."

Overall, the students gave the program a below average rating of "44."

Major idea remembered # one:

POINTLESS, BORING, INANE, OVER-SIMPLIFIED, SUITABLE FOR SPECIAL EDUCATIONAL PURPOSES.

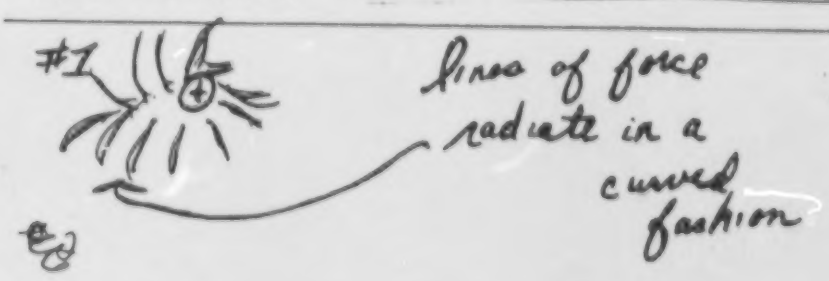
← THIS IS WHAT IT SHOULD LOOK LIKE.

Major idea remembered # two:

WHEN GIVEN THE COST OF THIS PROGRAM, I FOUND IT HIGHLY OVERPRICED

THE PROGRAM IS UNABLE TO GIVE A COMPLETE PICTURE OF THE ELECTRIC FIELDS AT ONE TIME.

Major idea remembered # one:



TITLE: English Basics: Adjectives
Intended Audience: Grades 3-6
Curriculum: Basic Grammar Skills
Instructional Method: Tutorial and Drill
Hardware Format Tested: Commodore 64
Producer and Author: Educational Activities, Freeport, NY 11520; Stefan L. Irving and William B. Arnold
Distributed by Educational Record Sales, 157 Chambers St., New York, NY 10007
Cost: $40

Stated Objectives

"Lesson One: Adjectives are defined and examples are given showing how they modify a noun. A quiz sentence is given and the student is asked to find the adjective and also identify the noun it modifies. Score is kept.

Lesson Two: Sample sentences are displayed using all types of adjectives. A rule is given explaining how to make adjectives from most verbs by adding an 'ing' ending. The student is asked to form adjectives from verbs and type them in. The new adjectives then appear in sentences. The last part of the program describes how to make adjectives from nouns. The student is asked to copy a list of base words and suffixes and to combine each base word with one suffix to make a new adjective.

Lesson Three: Comparative and superlative adjectives are explained and samples of each are given. It is pointed out that most comparative adjectives include the suffix 'er,' and that most superlative adjectives include the suffix 'est.' Examples of both are given and also examples of comparative and superlative adjectives that do not follow this rule. The student is asked to type the proper form of an adjective which best fits the context of a sentence.

Lesson Four: The computer displays a sentence and indicates the number of adjectives contained within the sentence. The student is asked to identify each adjective and type it in. If the student desires extra practice, there are 50 quiz sentences available."

Teacher Evaluations

No teachers completed evaluation forms for this program.

Student Evaluations

Ten eighth graders examined this program. None of the students had any prior experience with educational microcomputer software.

Each of the students spent an average of 31 minutes with the program before completing an evaluation form.

Half of the students agreed, "this program was too easy for me." Ninety percent agreed, "I would like to be graded by my teacher on the work I did with this program."

Ninety percent of the students agreed, "This program helped me when I made a mistake." None of the students felt that they ever got lost and didn't know what to do.

None of the students felt that the program was a waste of time. Eighty percent agreed, "Compared to the other times I have studied this subject, this program was fantastic."

One student wrote, "It explained everything perfectly...it gave you three tries to get it right and then gave you the answer...it had four different levels for you to choose..."

Overall, the students gave this program a rating of "78."

Major idea remembered # one:

There can be more than 2 adjectives.

Major idea remembered # two:

It told me if I was wrong

Major idea remembered # two:

Adjectives can be behind the word they modify.

Major idea remembered # one:

a long, dark, winding, creepy staircase led to the deep, dark, dank, dangerous, dirty dungeon.

Major idea remembered # two:

VERY PRECISE, TUTORIAL.
DIDN'T INSULT MY INTELLIGENCE.

TITLE: English Basics: Adverbs
Intended Audience: Grades 3-6
Curriculum: Basic Grammar Skills
Instructional Method: Tutorial and Drill
Hardware Format Tested: Commodore 64
Producer and Author: Educational Activities, Freeport, NY 11520; Stefan L. Irving and William B. Arnold
Distributed by Educational Record Sales, 157 Chambers St., New York, NY 10007
Cost: $40

Stated Objectives

"Modifying Adverbs: Modifying adverbs are defined and sample sentences illustrating their function in a sentence are displayed. Rules explaining why and how adverbs fit into a sentence are given and the student has the opportunity to review these rules as often as desired before beginning an exercise. The computer displays quiz sentences and the student is asked to locate the modifying adverbs.

Comparative Adverbs: Adverb examples are given and then the degrees of the adverb itself in comparative superlative form. Rules explaining how adverbs that end in 'ly' are changed into comparative and superlative forms are reviewed as often as the student desires, as well as rules pertaining to those adverbs which have the suffixes 'er' and 'est.' An adverb is displayed and then the student is asked to give its comparative form. After one incorrect response, the correct answer appears and the appropriate rule is displayed. The final exercise provides the student with a list of adverbs and their comparative and superlative word changes. The student is asked to copy the words and use them in making up original sentences.

Changing Adjectives to Adverbs: The rules for changing adjectives to adverbs are explained and then the student is asked to practice exercises. After two incorrect responses, the correct answer is given. The student has the opportunity to review test frames if desired.

Adverb Drill: The student is asked to identify an adverb, or a series of adverbs, within the context of a sentence. The student is also required to identify the word modified by each adverb in the sentence."

Teacher Evaluations

No teachers completed evaluation forms for this program.

Student Evaluations

Four eighth grade students evaluated this program. This was the first time any of the students had worked with an educational microcomputer program.

Each of the students worked with the program for an average of 32 minutes before completing the evaluation form.

Half of the students agreed that the program was too easy, and all agreed, "I would like to be graded by my teacher on the work I did with this program."

All of the students agreed, "this program helped me when I made a mistake," and "compared to the other times I have studied this subject, this program was fantastic."

One student commented, "It would help correct my mistakes if I made them, and it didn't scold me."

Overall, the students gave the program a rating of "75."

Major idea remembered # one: it gives hints if you miss an answer

Major idea remembered # one:

Some adverbs make their superlative + comparative form by complete word changes.

Major idea remembered # two:

Adjective can change into adverbs

TITLE: Facemaker
Intended Audience: Grades K-6
Curriculum: Elementary Memory Skills
Instructional Method: Puzzle and Game
Hardware Format Tested: Apple II and Commodore 64
Producer and Author: Spinnaker Software, Cambridge, MA, Clark Quinn and Margaret Weinstein
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $40

Stated Objectives

A note to parents in the guide states, "Facemaker is a fun way to learn how to use the computer. Children can build a variety of faces and then animate them. Eyes can be made to wink, ears wiggle, and faces smile in any order the child likes. When children are pressing the keys to animate the face they are giving instructions to the computer using a very simple form of pr gramming."

Teacher Evaluations

Four fourth grade teachers who have all used ten or more microcomputer programs with their classes prior to the evaluation examined the program. Each spent an average of twenty minutes with Facemaker.

The program was given average to below average grades for all areas graded. The teachers generally felt that the program was a little below the interest and ability level of their fourth graders.

Teachers noted that the program does help with sequencing and memory skills and might be a basic program for the lower grades, k-1.

Overall, these fourth grade teachers gave the program a low averaged rating of "50."

Student Evaluations

Eleven students evaluated Facemaker. All were from the fourth or fifth grade. All had prior experience with educational programs, each having worked with eight or more before the evaluation. Each student worked with the program an average of 24 minutes. Most of the students indicated that it took them about 15 minutes to work through the program once.

Nine of the eleven (82%) said they would like to do the program again. Nine wanted to take the program home. Nine recommended the program to their friends.

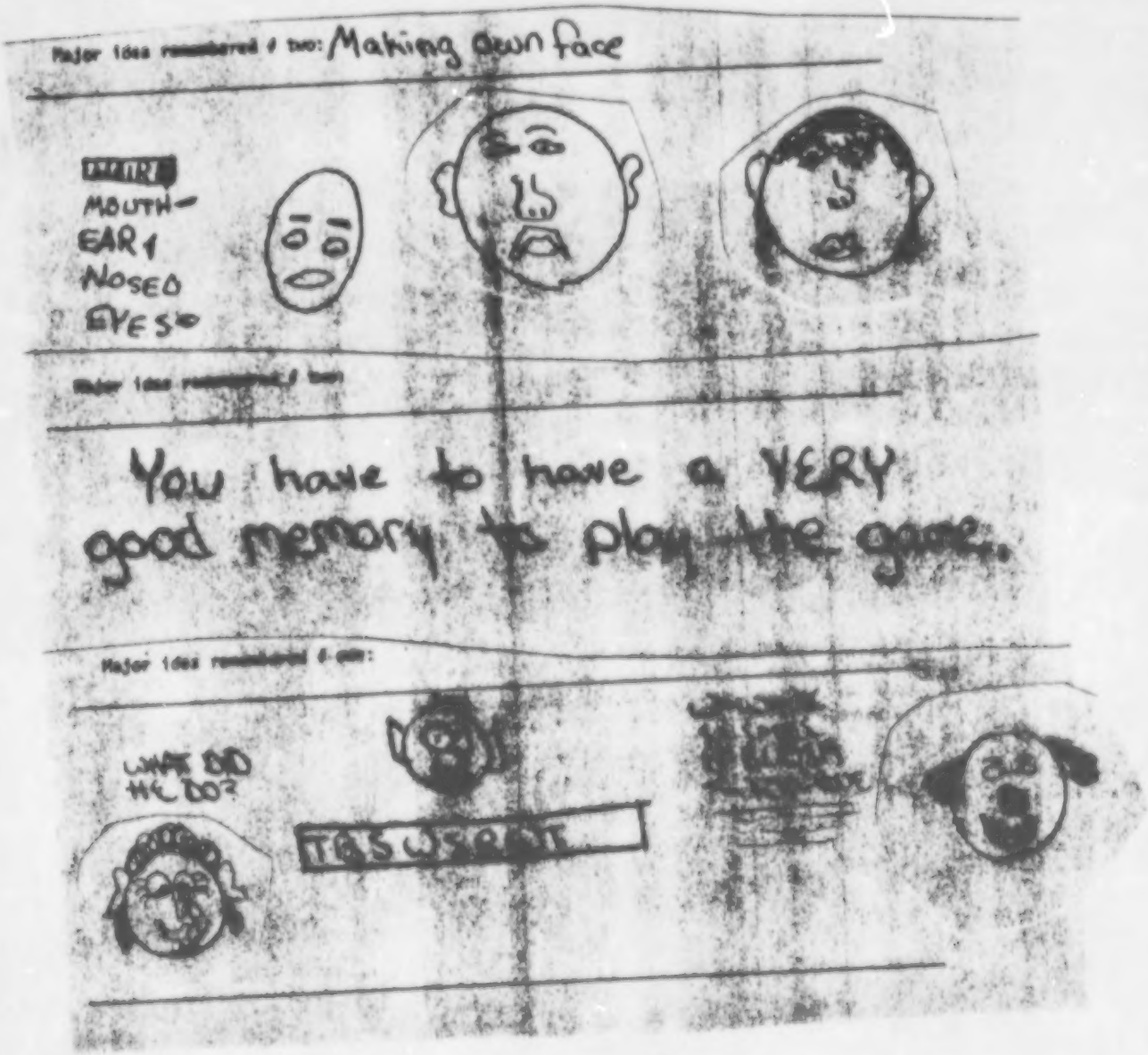
Sixty-six percent felt the program was not too easy and that, 82% agreed, they really had to think in order to get the correct answer.

One fifth grader wrote, "I remember having fun making my own face, and getting to see how it worked when it cried or smiled. I also remember after it got to about 16 things to remember that it did get kind of hard. But it

was challenging and fun!"

A fourth grader wrote, "I even enjoyed being zapped."

Overall, the students gave the program a rather high averaged rating of "91."


Major idea remembered # two: Making own face
MOUTH-
EAR 1
NOSED
EYES
You have to have a VERY good memory to play the game.
Major idea remembered # one:
WHAT DID HE DO?

TITLE: Factoring Whole Numbers
Intended Audience: Grades 2-9
Curriculum: Math
Instructional Method: Tutorial and Game
Hardware Format Tested: Apple II
Producer: Quality Educational Designs, P O Box 12486, Portland, OR 97212
Cost: Not Available

Stated Objectives

"Factoring Whole Numbers is a series of highly interactive computer programs," according to the guide for this set. "The programs lead the student to an understanding of fundamental concepts, require successful solution of problems at increasing levels of difficulty, and permit additional exploration of ideas."

"Facility with factoring whole numbers is essential to success with fractions. An understanding of how numbers related to each other by multiplication is fundamental to the mastery of algebra. Most student errors in work with numerical fractions and with algebraic expressions can be traced to a confusion between the processes of addition and those of multiplication."

"Factoring Whole Numbers takes the student through factoring, beginning at an experimental level with manipulative materials, and moving step by step toward abstraction."

Teacher Evaluations

Two seventh grade math teachers spent 80 minutes each with this program before completing the evaluation form. Both teachers had extensive experience with microcomputer programs. Both indicated utilization of ten or more programs in the classroom prior to the field test.

The teachers gave the program average grades for "likely to arouse student interest," and "suited for its intended grade level." Below average grades were given for "verbal and graphic information is well paced and clear," "relevant practice or testing is consistently provided," and "feedback is consistent and provides remediation."

One teacher noted a program strength as "an excellent challenge to upper level math students." However, the same teacher said that the program fails to provide enough guidance when students have difficulty.

The teachers found the program to be a basic support to the introduction of advanced math theories and problems for the seventh grade.

The teachers gave the program an overall rating of "77."

Student Evaluations

Ten seventh grade students spent an average of 50 minutes with this program. All of the students had experience with several programs prior to the evaluation as each had used at least nine or more programs in class.

Two of the students stopped working with the program because they "got bored." Half of the students said they would rather not work with the program again.

Only 30% of the students said that they "really had to think in order to get the correct answer." However, none of the students said they "got the answers correct on the first try."

Ninety percent indicated they would rather do this program alone than with a classmate.

Only 30% were willing to recommend the program to a friend.

The students gave the program a rating of "77," which is an average rating compared to the other programs field tested.

Major ideas remembered # two:

I learned how to find factor pairs. I learned a new term I never called them factor pairs before! The diagrams helped alot!

Major ideas remembered # one:

There were no graphics at all during the program.

Major ideas remembered # one:

I liked when you made a mistake the program stoped to show you what you did wrong and how to do it right. also helped me a lot with Expenents.

TITLE: Fraction Fever
Intended Audience: Grades 1-9
Curriculum: Math
Instructional Method: Game
Hardware Format Tested: Commodore 64, also available in Atari
Producer and Author: Spinnaker, 215 First Street, Cambridge, MA 02142; Tom Snyder
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $35

Stated Objectives

Fraction Fever "is an exciting learning game that combines true educational value with honest-to-goodness fun for the whole family. As you hop along on your pogo stick, you'll be searching for the picture-fraction that matches the fraction at the top of the screen. Spot the correct fraction and ride the Fraction Elevator up to higher floors. Eliminate incorrect fractions and score points. Matching fractions takes skill. The same fraction can be shown in several different ways. And while you are looking for fractions, you need to watch out for holes in the floor and keep an eye on the clock! For young players, Fraction Fever helps develop an understanding of what a fraction is. It uses numerical and visual representations to demonstrate relationships between different fractions."

Teacher Evaluations

A fifth grade teacher and an elementary school media specialist found this program to be too frustrating to be able to recommend it to anyone. Both teachers had worked with at least five programs prior to this evaluation.

Each teacher, however, spent only ten minutes with the program before completing an evaluation form.

The teachers gave the program slightly above average grades on one judgment statement, "The content of this program is accurate." All other statements received below average or failing grades. Grades of "D" and "F" were given for, "program is suited for intended audience," "verbal and graphic information is well paced and clear," "documents and printed guides give sufficient support," and "the program provides a clear evaluation of the student's performance."

One teacher wrote, "...too much going on at once.... Directions don't explain how to control screen or show knowledge of answer."

The averaged rating from the two teachers was one of the lowest given to a program from the pool tested, "18."

Student Evaluations

Twenty-five fifth graders evaluated the program. All but two were experiencing their first microcomputer program with this field test.

Average time spent with the program by the students was only nine minutes.

Generally, the responses from the students were normal when compared to the responses to the entire student pool. Eighty percent, within the average percentage of agreement, indicated that they "would like to do the program again." Eighty percent agreed, "I think my friends would like this program."

Fifty-six percent, again within the normal response rate for this statement, agreed, "I really had to think in order to get the right answer." Sixty-four percent agreed, "Compared to the other times I have studied this subject, this program was fantastic."

Overall, the students rated the program slightly below average at "63."

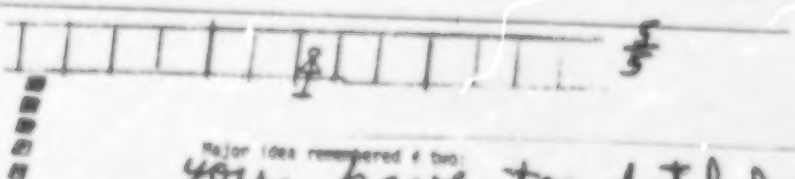
Major idea remembered # one:

you could make it move as fast as you wanted and to do that you had to press the button and move it side to side.

Major idea remembered # two:

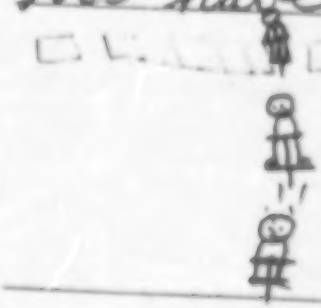
You had to get right on top of the fraction and press the button

Major idea remembered # one:



Major idea remembered # two:

you have to whatch for no blocks



TITLE: Gas Laws and Kinetic Molecular Theory
Intended Audience: Grades 8 and up
Curriculum: Science; chemistry and physics
Instructional Method: Tutorial with simulated experiments
Hardware Format Tested: Apple II
Producer and Author: Merlan Scientific Ltd. of Georgetown, Ontario, Canada:
J. Osborne and R. Smythe
Distributed by CDL (Cambridge Development Lab), 100 Fifth Av, Waltham, MA 02154
Cost: $103

Stated Objectives

"This program can help the student to develop an intuitive grasp of the basic ideas of the Kinetic Molecular Theory. A simulation of molecules in motion is used to develop several key concepts:

--the relationship of temperature and the speeds of the molecules in a substance
--qualitative idea of Charles' Law, the effect of an increase in temperature on gas volume
--the difference, on a molecular level, between a solid, liquid, and a gas
--what happens to the molecules during melting, evaporation, and vapourization
--definitions of melting and boiling points.

Teacher Evaluations

Three teachers in secondary school science worked with this program for an average of 50 minutes each. The teachers had limited experience with other microcomputer programs as they indicated an examination of five programs each prior to this testing and none of them had experience with using microcomputer software with a class.

The program was given above average grades (A's and B's) for "likely to arouse student interest," "content of the program is accurate," and "learner responses require thought and are a challenge."

Teachers gave the program average to below average grades (C's and D's) for "relevant practice or testing is consistently provided," "feedback is consistent and provides remediation," and "the program provides a clear evaluation of the student's performance."

The teachers noted the strength and high quality of the graphics as a major plus for this program.

"Unclear directions," especially for the first three programs seemed to be the major weakness of the series.

The teachers accepted the program as basic to their curriculum and indicated that especially the last few programs in the series would be very supportative of the "unit on heat."

Overall, the teachers gave the program an averaged rating of "75."

Student Evaluations

Twenty-two ninth grade students spent an average of 35 minutes with this program. Most of the students indicated some experience with microcomputer programs as they circled having worked with four to six programs prior to this field test.

Three of the students indicated they got bored and left the program early, although all of them worked with the program for at least 15 minutes.

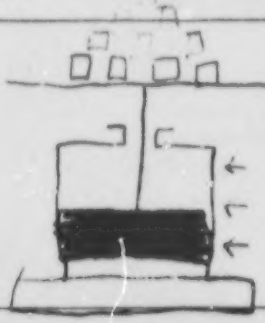
A low 27% indicated that they "would like to do the program again." Only 41% recommended the program to their friends. The students didn't seem to be challenged by the program. Only 18% agreed with the statement, "this program is too hard," and 9% agreed with the statement that "I could not do this program without help from my teacher." Half of the students said the "program was too easy for me."

A relatively high percentage (73%) indicated that they felt more comfortable working through the program with a classmate and would prefer such a situation instead of "working through the program by myself." Since, in this case, the students did examine the program in pairs, and they tended to experience succcess in answering the questions, it should be expected that the students would want to continue to work together through the remainder of this software series. Half of the students said that the "program helped me when I made a mistake," and 36% agreed with the statement, "I really had to think in order to get the right answer."

Many of the students noted the need to remember formulas taught in class in order to work through the problems.

Overall, the students gave this program an averaged rating of "65."

Major idea remembered # one:



Major idea remembered # two:

Molecules, when the air gets hotter the molecules move faster in the box.

Major idea remembered # two:

more pressure gives you less volume

Major idea remembered # one:

New volume = old volume x pressure fraction

TITLE: Geo Terms Program: United States
Intended Audience: Grades 5-8
Curriculum: Social Studies
Instructional Method: Drill and Practice, Word Game
Hardware Format Tested: Apple II
Producer and Author: Marc Ed, Inc., Indianapolis, IN
Distributed by Cram, Geo F. Co., Att: John Talbott, 301 S. LaSalle, Indianapolis, IN 46204
Cost: $56

Stated Objectives

This program is intended to increase student literacy in geography and social sciences through challenges to recognize, spell, read, and use the terms which comprise a basic geographic, historical, and cultural vocabulary. Terms are scrambled and students must figure out the correct word to fit into a given sentence or situation. Teachers may add words for student practice.

The guide states that the "student will recognize, read and spell the 250 geo terms in this program."

Teacher Evaluations

Three fifth grade teachers spent 15 minutes each with this program prior to completing evaluation forms. Both had extensive experience with microcomputer programs prior to the evaluation as each had used ten or more in the classroom.

Comments from the teachers were all very brief. "Waste of time," and "lousy program" were the total of the "constructive" remarks.

Overall, the teachers gave the program a very low "35" rating with no additional remarks to support their negative reaction.

Student Evaluations

Eight fifth graders spent an average of 26 minutes each with this program. Half of the students had some prior experience with educational software for microcomputers as they noted five or more programs with which they worked prior to this evaluation. Four of the students noted this to be their first experience with a microcomputer program. Comments from the two groups did not differ.

All agreed that they would like to do this program again. All agreed that their friends would like the program. None of the students thought the program was a "waste of time" nor did any believe the program to be "too long." All but one of the students were ready to take this program home to work with it more.

Seventy-five percent of the students agreed with the statement, "compared to the other times I have studied this subject, this program was fantastic."

All agreed, "I really had to think in order to get the right answer."

Overall, the students gave this program an exceptionally high rating of "92."

Additional Comments from the Research Assistant

This program gave "very good instructions and directions for the user, as well as the opportunity for the teacher to make his or her own programs." Several lesson plans are given in the manual.

The teacher should be prepared before using this program. It can be confusing if one hasn't read the guide from cover to cover. This program is a supplemental activity and will work as an addition to class reading and lecture.

Major idea remembered # two:

I learned how to spell words I didnt know how to spell.

TITLE: Gertrude's Puzzles
Intended Audience: Grades 1-9
Instructional Method: Educational Game and Puzzle
Hardware Format Tested: Apple II (requires color monitor)
Producer and Author: The Learning Company, Menlo Park, CA, Leslie Grimm, Teri Perl and Warren Robinett
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $45

Stated Objectives

"Gertrude the Goose flies in and out of the video screen with puzzle pieces of different shapes and colors.... Children learn how to solve problems with incomplete information and analyze what they see. Players learn by moving puzzle pieces to form color and shape patterns. They move to six different puzzle rooms, each with a new challenge. Sometimes they'll arrange game pieces according to given rules, and sometimes they'll have to guess the rule. Gertrude the Goose delivers sets of puzzle pieces and prizes. Children can design their own set of pieces, using this powerful new Discovery Tool game. Children as young as six can enjoy this program. Yet the harder puzzles still manage to challenge adults."

Teacher Evaluations

Three elementary school teachers who all had experience with microcomputer programs prior to examining this program, each had worked with at least eight such programs in the classroom, averaged 42 minutes each in working with Gertrude's Puzzles.

All three graded the program average to above average in "likely to arouse student interest." However, the highest grades were given to this program for its demands on the student, as all three said, for responses requiring thought and are a challenge.

Comments from the three teachers included, "the program is good for spatial conception training," and "the program is better than previous programs involving mazes."

The teachers saw Gertrude's Puzzles as a program to support and enhance current instructional activities, but not an essential program required to be present before the basic skills presented in the program could be taught in the classroom.

Overall, the teachers rated the program with a score of a rather average "78."

Student Evaluations

A total of 13 fourth and fifth graders examined the program. All had experience with microcomputer programs prior to their evaluation. Each had worked with six or more programs. The amount of time spent with the program was rather high when compared to other student evaluation periods, as the students averaged 44 minutes in completing the program.

Eighty-five percent of the students said they would like to do the program again, even after spending nearly one hour with it. All were happy with the graphics.

A majority of the students agreed, "I really had to think in order to get the right answer," and "the program helped me when I made a mistake." Gertrude's Puzzles was recommended to friends by 69% of the students.

Eighty-five percent of the students felt that the program was not too hard for them, but the same percentage felt that the program was not too easy. The same high percentage felt that they could do the program without the teacher's help and a majority felt that "compared to the other times I have studied this subject, this program was fantastic."

Overall, the students rated this program rather high with an averaged rating of "86."

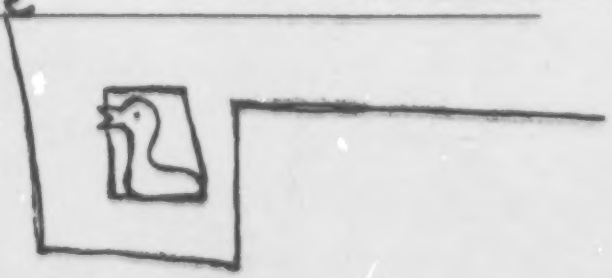
Major idea remembered # one:

You had to get diffrent shapes in the boxes, without having the same shape in the same row

It was a little long and some parts weren't to meaningful.

Major idea remembered # one:

Moving Gertrude



TITLE: Intermediate Language Arts
Intended Audience: Grades 4-8
Curriculum: Language Arts, Reading
Instructional Method: Tutorial, Drill and Practice
Hardware Format Tested: Commodore 64
Distributed by Filmcraft Audiovisuals, Att: Hank Glesing, 5323 W 86, Indianapolis, IN 46268
Cost: $114

Stated Objectives

A four disk program dealing with basic language arts activities including speed reading and use of plurals.

Teacher Evaluations

No teacher evaluation forms were completed for this program.

Student Evaluations

Twenty-nine fifth and sixth graders examined this program. None of the students had prior experience with more than three microcomputer programs.

The students spent an average of 28 minutes working with the program before completing an evaluation form.

As a group, these fifth and sixth graders responded to this program in the manner very similar to the normal response of the pool of students. Seventy-nine percent agreed, "I'd like to do this program again," and 79% agreed, "If I could, I would take this program home to use it." Both responses giving a positive reaction to the program, but not moving beyond the normal agreement percentage found with all of the programs tested.

An exceptionally low agreement of 28% was given to the statement, "I really had to think in order to get the right answer." However, only 28% agreed, "This program was too easy for me."

A rather high 62% agreement was given to the statement, "I would like to be graded by my teacher on the work I did with this program."

Eighty-six percent agreed, "I think my friends would enjoy this program." This is slightly higher than the normal 71% agreement from the entire pool of students.

Overall, the students gave the program a high rating of "92."

Major idea remembered # one:

It flashed words across the screen you had to see them fast.

Major idea remembered # two:

The frog saying croak when I missed a word

Major idea remembered # one: elf
elves

Major idea remembered # two: mass
masses

It was too long and should show the scores when you have to quit

This program was very nice because It helps you read better.

TITLE: Interpreting Graphs & Tables
Intended Audience: Grades 4-8
Curriculum: Math
Instructional Method: Tutorial and Practice
Hardware Format Tested: Apple II and TRS 80
Producer and Distributor: K-12 Micromedia, P O Box 17, Valley Cottage, NY 10989
Cost: $37

Stated Objectives

A basic introduction to the construction and reading of information from graphs or tables.

Teacher Evaluations

Five elementary school teachers representing grades four to six evaluated this program. The teachers had some experience with microcomputer programs prior to the evaluation, as all indicated they had examined and used in class six or more programs.

The teachers worked with the program for an average of 32 minutes before completing the evaluation form.

The teachers gave the program average to above average grades (B's and C's) for "program is likely to arouse student interest," "provides sufficient review without unnecessary redundancy," "documents and printed guides give sufficient support." High grades (A's and B's) were given for "program meets is own stated objectives," "suited for intended audience," "content of the program is accurate," "relevant practice or testing is consistently provided," and "the program provides clear evaluation of the student's performance."

The teachers noted several strong points for the program. One teacher praised the "reinforcement it gives students for correct answers...compares current performance with prior performance: 'You are doing much better, Tom...received 98% correct this time vs 68% last time.'" All teachers noted that the graphics were "cleverly executed" and the selection of content areas covered by the examples of graphs and tables were relevant to real life situations. In a few cases, however, the teachers also noted that a couple of graphs were difficult to read because they did not seem to "be in focus." One teacher wrote that the program "assumes that the child has had some basic work with a table or graph" prior to entering this program.

Teachers saw utilization of this program to reinforce concepts in math, social studies and reading. "I would teach graph/table units working first on paper and in workbooks, then I would send them back in pairs and the students would work through this program on their own...challenging program, but not too difficult for fifth graders."

None of the teachers had experienced a microcomputer program of similar content prior to this field test. All of the teachers indicated that "this microcomputer program supports and enhances my current materials and would provide BASIC support to the instruction of the skills I require of my students."

Overall, the teachers gave the program an averaged rating of "80."

Student Evaluations

Twenty-one fourth and fifth graders field tested the program. All of the students indicated experience with six or more programs prior to their examination of this program.

The students spent an average of 19 minutes with the program before completing an evaluation form.

Relative to the entire field of programs tested, an average percentage (76%) of the student group were in agreement, "they would like to do the program again," and (62%) "if I could, I would take this program home to use it." A relatively high percentage of the group (95%) recommended the program to their friends.

The program seemed to be easy for the students to manage as a high 95% disagreed with the statement "I think this program is too hard." Only one student of the 21 agreed that "I could not do this program without help from my teacher." Eight of the fifth graders agreed that "this program was too easy for me."

Written comments from the students included some reproductions of the graphs and tables, but four of the students emphasized the importance of reading the graph carefully and taking your time to consume all of the information from the graphics before attempting to answer any of the program's questions.

The students gave the program an averaged rating of "73."

TITLE: Kids On Keys
Intended Audience: Grades K-3
Curriculum: Reading Readiness, Keyboard Training
Instructional Method: Skills Practice, Game
Hardware Format Tested: Commodore 64, also available in Atari, Apple II, and IBM Personal
Producer and Author: Spinnaker Software, 215 First St, Cambridge, MA 02142, Frieda Lekkerkerker.
Distributed by Marbaugh, Att: Leslie Hay, 601 N Capital, Indianapolis, IN 46204
Cost: $35

Stated Objectives

"Three games that familiarize children with the keyboard, letter, numbers, and words. Strengthens typing, spelling, and letter recognition skills."

"In Game 1, letters and numbers float down the screen, followed by a balloon with a word in it. The child has to find the matching keys and then type in the correct word quickly -- before the images disappear. Game 2 has a child type in the word that matches the colorful picture moving down the screen. And in Game 3, children choose the word that correctly identifies the picture they see."

Teacher Evaluations

Three elementary school teachers evaluated this program. One represents the first grade, one is an elementary school media specialist, and one a learning resource teacher in special education. All three indicated experience with ten or more programs prior to the evaluation.

Each teacher gave an average of 20 minutes to working with the program before completing an evaluation form.

The teachers gave the program high grades (all A's) for "likely to arouse student interest." All other statements received average grades of B, but mostly C's. The program was graded as average for "verbal and graphic information is well paced and clear," and "program provides sufficient review without unnecessary redundancy."

Teachers noted that the program will help students learn the location of keys on the computer's keyboard, and the program is "very motivating."

A major problem for the teachers (although it does not seem to be a problem for the kids) was being able to recognize what some of the graphics were: a cat? a dog? a star?

One teacher was in charge of a resource room and he or she wrote, "...this program provided exercises in visual memory, spatial relationships and form constancy...I was thrilled!"

Overall, the teachers gave the program an averaged rating of "90."

Student Evaluations

Eight students from the fourth grade evaluated the program. All of the students were from a special education class. None of the students had worked with more than three educational programs prior to this field testing.

Each of the students was allowed 10 minutes to work with the program before completing an evaluation form.

All of the students agreed with the statements, "I'd like to do this program again," "the graphics were helpful," and "compared to the other times I have studied this subject, this program was fantastic." All but one of the students agreed that they "would like to be graded by my teacher on the work I did on this program."

None of the students felt that the program was too hard and none of the students felt that they got lost. Only two of the eight agreed with, "I really had to think in order to get the right answer."

Overall, these students gave the program an averaged rating of "71."

Thirty-five second graders worked with the program for 12 minutes each. There was a 100% agreement for the statments, "I would like to do this program again," "I think my friends in class would like to do this program," and "I could do this program without help from my teacher."

One third of the students, however, an exceptionally high percentage to disagree, indicated that they either had trouble with or did not like the pictures. Most students, however, who have spent more than 30 minutes with the program soon learn the pictures and feel very secure with the visuals.

PICTURE # TWO:

TITLE: KoalaPad Touch Tablet Illustrator
Intended Audience: Grade K-College
Curriculum: Art or Recreational
Instructional Method: Be Creative
Hardware Formate Tested: Apple II, Commodore 64 and also available for IM3-PC and Atari
Producer: Koala Technologies
Distributed by Software Exchange, Att: Gary Pirinelli, 2439 E 65th St, Glenlake Plaze, Indianapolis, IN 46220
Cost: $100

Stated Objectives

"Your KoalaPad Touch Tablet is a state-of-the-art, highly technical position sensing device. It converts finger or stylus pressure and movement into electronic signals for controlling computers and it's particularly useful for drawing pictures and pointing to images on computer TV screens. Depending on the computer program you are using, your finger's movement across the tablet could result inthe drawing of a colored line on the display, the movement of a game piece, the creation of a musical sound, the triggering of programmable function keys -- and more."

Teacher Evaluations

No other program in the pool of those tested created as much excitement as the KoalaPad Illustrator. Teachers and students both spent hours with this small 6" x 8" touch pad which allowed them to draw in very bold colors. As if by magic, blocks, circles and lines would be transformed into exciting graphics and the user was hooked on creating new and unique illustrations on the screen.

Three teachers evaluated this program, two from junior high school art and one a high school art teacher. One teacher had worked with ten or more programs prior to the evaluation, the other two had experienced fewer than three programs each. None of the teachers had utilized microcomputer software in the classroom.

The teachers averaged 88 minutes each with the KoalaPad Illustrator before completing an evaluation form.

All grades given to the program by all three of the teachers were in the "A" range for all of the criteria statements. The only negative comments included "it was difficult at times to remove your drawing," and two teachers wanted to be able to print out their illustrations, but were not able to do so during the field testing.

Positive statements from the teachers included, "It was easy to get started," and "Students feel more free to experiment and to take risks in their work."

Suggestions for possible uses for the program included, "the students can use this program to plan out a painting through various stages of color overlay before going to the canvas," and "we can experiment with some exciting new graphics for the yearbook."

Overall, the teachers gave the KoalaPad Illustrator an exceptionally high rating of "93."

Student Evaluations

Twenty-nine sixth, seventh and eighth graders worked with this program. Some of the students worked with the pad for over three hours, but the average amount of time invested was 92 minutes for each student.

Students from the sixth grade, 13 in all, had experienced ten or more microcomputer programs prior to this field test. Few of the 16 seventh and eighth graders had experienced more than two microcomputer programs in school.

All of the students agreed, "I'd like to do this program again." None of the students felt that the program was too hard, and all were ready to recommend the program to a friend. While these reactions were slightly above the normal reaction to the programs tested, the agreement to the statement, "I would like to be graded by my teacher on the work I did with this program" was 41%, well under the average 55% that agreed to that statement for the entire pool of programs.

Overall, the students gave the program an averaged rating of "90."

Major idea remembered # one:

What Did I like or dislike about this computer + should we buy it?

yes I definetely think We should buy it. It was a rewarding experience seeing me draw & pick the color + things I liked

Major idea remembered # two:

What I enjoyed most:

Rays, drawing

fill, drawing

TITLE: Library Skills
Intended Audience: Grades 4-8
Curriculum: Language Arts, Library Skills
Instructional Method: Tutorial
Hardware Format Tested: Apple II
Producer: Micro Power and Light Co., Dallas, TX
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $30

Stated Objectives

The guide states that this program is designed to "help the student learn how to find fiction, nonfiction and biographies; and to use the Dewey Decimal System, the card catalog, and selected general reference materials."

Teacher Evaluations

Six teachers examined and evaluated this program, three of the six are media specialists who teach library skills. All of the teachers have had prior experience with microcomputer programs, each noting ten or more such experiences prior to this evaluation. Each teacher spent an average of forty minutes with the program.

Generally, the teachers graded the program average to below average in all categories for judgment. The program received low grades for "likely to arouse student interest," and "suited for intended grade level." The lowest grades were given, however, for "content of the program is accurate," and "relevant practice or testing is consistently provided."

The teachers saw problems in spelling, incorrect categories given for materials discussed (especially the cookbook), and were very critical of definitions used for reference materials presented in the program.

One teacher wrote, "There is not enough different samples of cards given... once you've gone through the program and want to do it again, you go through the same titles, authors...should be a more random selection available."

The media specialists were very clear in noting the poor and limited definitions given for a poetry index, an almanac and an atlas. "Definition of an almanac is grossly inadequate. This item needs to be completely reworked after the author has perused an almanac and become familiar with its contents. It the author talking about a totally different item...the publication called 'Old Farmers' perhaps?"

The program provides drills and questions from a card catalog having a separate subject file. Smaller libraries should beware of this since many of them will have a combined author-title-subject catalog.

Several of the rules for identification of subject, author, and title on a card catalog card entry were disputed by the media specialists examining the program. In some cases, they felt the program did not match to nationally accepted classification standards.

Overall, the teachers rated this program at "56."

Student Evaluations

Nine seventh and eighth graders examined the program. Each had some prior experience with microcomputer programs, four or more. Each spent at least 23 minutes with the program prior to completing an evaluation form.

Two of these students stopped the program because they "got bored." Six of the nine students (67%) agreed, however, that "compared to the other times I have studied this subject, this program was fantastic."

Only one student said that the program was a waste of time. Seven of the nine (78%) were willing to recommend the program to a friend. The students seemed to feel secure with the program as 78%, and exceptionally high agreement, were willing to be graded on their work with this program.

Overall, these older students rated the program Library Skills at "83."

Seven third graders spent an average of 37 minutes with the program. Each had worked with four or more microcomputer programs prior to this program. All indicated that they wanted to do the program again. All checked agreement with, "I really had to think in order to get the right answer." And all seven wanted to take the program home to work on it more.

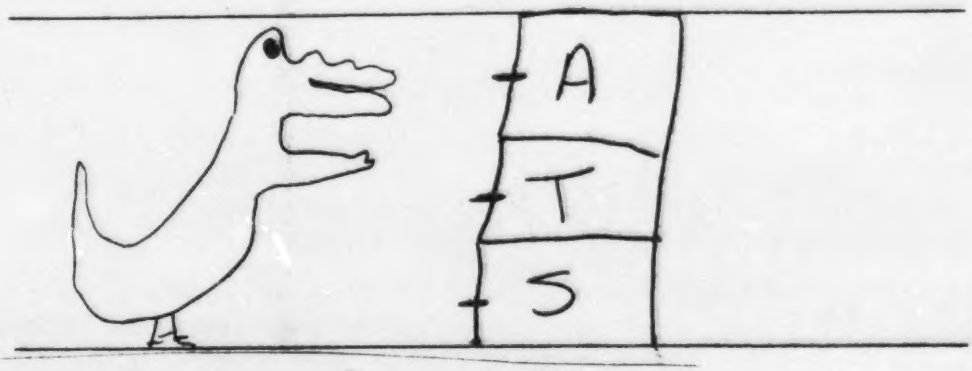
Six of the seven were ready to recommend it to a friend. Only one third grader said he or she got lost and the program was not able to help.

Overall, these younger students rated the program Library Skills at "78."

Major idea remembered # two:

They showed you something and then you had to help Ellie

Major idea remembered # one:



Books are aranged by alphbetical order by authors in fiction 97

TITLE: Lincoln's Decisions
Intended Audience: Grades 7 and up
Curriculum: Social Studies
Instructional Method: Simulation
Hardware Format Tested: Apple II, also available in Commodore 64 and TRS 80
Producer and Author: Educational Activities, P O Box 392, Freeport, NY 11520; Michael Roessler
Distributed by Educational Activities
Cost: $59

Stated Objectives

"This program leads students through the key events in President Lincoln's life and administration. At each major turning point, students are presented with the choices he faced and are challenged to duplicate his decisions. The program will deepen students' understanding of the values, conflicts, and tribulations of Civil War times."

Teacher Evaluations

One senior high school media specialist evaluated this program. The media specialist had prior experience with over ten microcomputer programs.

The media specialist worked with the program for twenty minutes before completing the evaluation form.

Generally, the media specialist gave the program average grades in all judgment areas. Slightly above average marks were given for "content of the program is accurate," "relevant practice or testing is consistently provided," and "documents or guides give sufficient support."

Average grades were given for "program is suited for its intended grade level," "program is likely to arouse student interest," and "program provides a clear evaluation of the student's performance."

The only major strength noted by the media specialist was, "brings forth several little known facts about Lincoln's life."

The media specialist was critical of the wait time as being too long. "Having to wait before seeing the next section...not quick enough to allow students to move rapidly through the program."

The teacher felt that this program could be used as supplementary material only.

Overall, the program was rated by the teacher at "65."

Student Evaluations

No student evaluations were completed on the program Lincoln's Decisions.

TITLE: Math for Everyday Living
Intended Audience: Grades 6-10
Curriculum: Math
Instructional Method: Tutorial, Problem Solving
Hardware Format Tested: Commodore 64
Producer and Author: Educational Activities, Freeport, NY 11520; Ann Edson and Allan A. Schwartz
Distributed by Educational Record Sales, 157 Chambers St., New York, NY 10007
Cost: $104

Stated Objectives

"After using Math for Everyday Living the student will be able to:

*Pay and make change
*Work with sales slips
*Find unit pricing
*Compute gas milage
*Figure sales tax
*Work with wages
*Compute earnings with overtime
*Figure earnings with piecework or commissions
*Work with time
*Understand the paycheck

Real-life math and business skills are taught with the progressive, tutorial and practice program. Making full use of the randomizing and branching capabilities of the computer, the student is given choices to make in real-life simulation-type activities. Correct answers bring rewards, while mistakes are corrected by showing the student how to do the problems."

Teacher Evaluations

One seventh grade math teacher evaluated this program series. The teacher had prior experience with ten or more programs used with his or her students in the classroom.

The teacher examined the program for 45 minutes before completing the evaluation form.

"A's" were given for "program meets its own stated objectives," and "program is suited for its intended grade level."

The teacher graded the program series as average for "likely to arouse student interest," "relevant testing is consistently provided," "learner responses require thought and are a challenge," and "documents and printed guides give sufficient support."

Low to failing grades were given for "program provides sufficient review without unnecessary redundancy," and "program provides a clear evaluation of the student's performance."

The teacher noted, "The students had difficulty using the programs because there were problems loading each lesson. Midway through the run an error message would occur and the program would stop. Time was wasted re-loading the program."

The teacher recommended the program for use in home economics classes as well as in math classes.

Overall, the teacher gave the program a below average rating of "50."

Student Evaluations

Thirty-one seventh, eighth, and ninth graders worked with portions of the program series. Each student averaged about twenty minutes with the program before completing an evaluation form.

Two groups were formed for the sake of comparisons. One group of 17 students had no prior experience with micrcomputer programs and the other group of 14 had experience with eight or more programs prior to this field test.

Only slight differences became apparent.

In both groups, four students indicated they stopped the program early because they got bored. Students from the inexperienced group were a bit more tolerant of the program as only 35% of the group agreed, "This program was a waste of my time." Sixty-four percent of the experienced group agreed with the statement. All but one member of the experienced group (93%) agreed, "This program was too easy for me." Only 47% of the inexperienced group agreed.

High percentages from both groups showed agreement with the statement, "I would rather do this program with a classmate than by myself." The inexperienced group indicated agreement by 70% of the members and the experience group indicated agreement by 86%. The normal agreement percentage for this statement from the entire pool of students was 57%. The high percentages may reflect the nature of this field test environment, as most of the students worked the programs as a team in order to save time.

Both groups gave a low agreement response to the statement, "I'd like to do this program again." Twenty-nine percent agreed with the statement from the experienced group, while only one member (7%) of the experienced group agreed. The normal agreement percentage for this statement was 74%.

Even though the student responses indicated little support for the program, the students wrote an impressive list of items remembered and facts learned from this series:

> "...it helped me learn how to figure time and a half pay for overtime..."
> "...it helped me to understand how to read a newspaper want ad."
> "...tips are part of the salary..."

However, the students were also critical in their written comments:

> "The program spent too much time telling the answer, even if the person got it right."
> "...the program couldn't keep my attention..."
> "...it needs changing colors, more graphics and could have had more human-like statements..."

Two other students wrote, "It helped me carry if I got a subtraction problem wrong," and "It helped me figure out what I got wrong so I wouldn't get it wrong again."

Overall, the students gave the program a below average rating of "54."

TITLE: Math Word Games
Intended Audience: Grades 4-6
Curriculum: Math
Instructional Method: Problem solving
Hardware Format Tested: TRS 80 Also available in Apple II and Commodore PET
Producer and Author: Webster Division of McGraw-Hill Book Company, John E. Haugo and EduSystems, Inc. of Minneapolis
Distributed by McGraw-Hill Book Company, School Division, 1221 Avenue of the Americas, New York, NY 10020
Cost: $39

Stated Objectives

"The ability to solve problems is the basic goal of mathematics instruction. Solving word problems that relate real-life situations to the mathematics learned in the classroom reinforces the idea that mathematics is an essential part of our daily lives. The steps a student should use in solving a word problem are basically as follows: 1) read the problem and determine what is to be found, 2) identify the operation that can be used to solve the problem, 3) determine what given information is essential to the solution of the problem, 4) state the problem as a mathematical example or sentence, 5) solve the problem."

Teacher Evaluations

Seven elementary school teachers evaluated this program. All had experience with at least eight microcomputer programs prior to the field testing and all indicated they had used at least eight programs in the classroom.

The teachers invested an average of 28 minutes with the software before completing the evaluation form.

Math Word Game was given high grades (A's and B's) for "this program meets is own objectives," "verbal information and graphic information is well paced and clear," and "documents and printed guides give sufficient support."

The teachers gave average grades to the following areas, "this program is likely to arouse student interest," "this program provides sufficient review without unnecessary redundancy," "learner responses require thought and are a challenge," and "the program provides a clear evaluation of the student's performance."

The teachers gave the program credit for being a good introduction to story problems, especially for low achieving students. However, the teachers also noted that the "break button" was not disabled as promised in the introduction and thus a student could accidently lose the program in midplay. One teacher expressed concern about the content accuracy by writing that "the math algorithum is not done correctly on two-digit answers...for example, if the answer is 35, the program records the tens digit first and then the 5... it should accept the 5 first, in the one's column, and then the 3 tens... this occurs when students enter their answers to the given problems."

Teachers also noted that the program "has too many problems for the low achievers and not enough reinforcement." "If the student errors," wrote one teacher, " the program just says 'try again.' So then it becomes a guessing game."

All of the teachers were willing to use the program on a regular basis with their students, especially as a program to introduce story problems and to use as a remedial activity.

One teacher compared Math Word Games to the similar program Read & Solve Math Problems. In the teacher's opinion, Math Word Games provided a wider coverage of reading levels and was useful for first graders as well as for fourth and fifth graders.

Overall, the teachers gave the program an averaged rating of "75."

Student Evaluations

Thirty-four fourth graders worked with this program. Within the group, 27 of the students were able to work with the program for less than ten minutes each prior to completing the evaluation form. Seven of the fourth graders, however, worked with the program for 90 minutes each. All of the students indicated some experience with microcomputer programs, as 79% of the total group of 34 indicated experience with ten or more programs and the remaining 21% indicated experience with at least six programs previous to the field testing.

A rather high 94% of the students agreed that they would like to do the program again. This included a 100% response from the seven students who worked with the program for over one hour each that they would still like to do more. None of the students felt that the program was too hard for them, and none of the students left the program because they got bored. A rather high 94% agreed with the statement that "If I could, I would take this program home to use it." Only a third of the total group agreed that "this program is too easy for me," and 97% of the group recommended the program to their friends.

Even though the teachers commented that there was little help from the program to assist in correcting mistakes, 82% of the students agreed with the statement "this program helped me when I made a mistake."

None of the students agreed with the statement, "this program was a waste of my time."

This program received a relatively high percentage (79%) of student agreement with the statement, "compared to the other times I have studied this subject, this program was fantastic."

Overall, the students gave the program an average rating of "84."

Major idea remembered # one:

I learned to read sentences because the first time I got three wrong.

TITLE: Meteor Multiplication
Intended Audience: Grades 3-9
"students of all ages requiring practice in arithmethic facts using numbers 0 through 9"
Curriculum: Math
Instructional Method: Drill and Practice, Game
Hardware Format Tested: Apple II and Commodore 64
Producer and Author: Developmental Learning Materials, Allen, TX 75002, Jerry Chaffin and Bill Maxwell
Distributed by Filmcraft Audiovisuals, Att: Hank Glesing, 5323 W 86, Indianapolis, IN 46268
Cost: $44

Stated Objectives

Meteor Multiplication "assists students in the multiplication of numbers 0 through 9 in a meteor shower format. Large meteors with multiplication problems in them move from all around the screen toward a large star station in the center of the screen. Answers to the problems are placed in the center of the star station, the station gun is aimed at the approaching meteor, and the gun is fired to disintegrate the meteor. If a meteor reaches the star station before disintegrated with the correct answer, the meteor hits the station and shatters in a highly graphic and sound explosion. Answers are placed in the star station gun and fired by designated keyboard keys. When paddle selection is made, answers appear automatically in the star station and the player must move the gun to match the answer to the appropriate problem before firing. Hits and misses are recorded in the galaxy at the bottom of the screen."

Teacher Evauations

Eleven teachers examined this program, seven teachers were from seventh or eighth grade math classrooms and four were school media specialists. The eleven could be broken into two groups with four indicating experience with ten or more programs previous to the field test and seven indicating little or no prior experience with computer programs. The only major difference between the two groups, however, did not show in their evaluations but in the time invested with the software itself. The more experienced group examined the program for an average of eight minutes, and the less experienced group worked with the program for an average of 24 minutes before completing an evaluation form.

Both experienced and inexperienced evaluators graded the program in much the same manner. Meteor Mutiplication was given high marks (A's and B's) for "program likely to arouse student interest," "content of the program is accurate," and "learner responses require thought and are a challenge."

Average grades (B's and C's) were given for "verbal and graphic information is well paced and clear," and "feedback is consistent and provides remediation."

Overall, the inexperienced teachers rated the program at a "78," and the experienced teachers rated the program at a "75."

Student Evaluations

Seventy-seven fourth graders, one of the largest student groups involved in the field testing, evaluated the program. All of these students had prior experience with fewer than three micrcomputer programs.

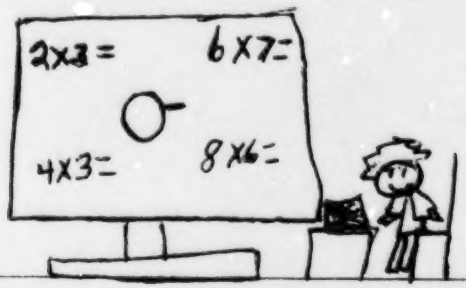
Two groups were established from the 77 students. Thirty-six worked with the program for an average of 35 minutes, and 41 of the students worked with Meteor Multiplication for an average of four minutes. When the two groups were compared, however, no major differences could be seen concerning agreement or disagreement on any of the criterion statements.

Only one of the 77 students indicated he or she would rather not do the program again. An exceptionally high 92% agreed that "If I could, I would take this program home to use it." An exceptionally high 84% agreed that "compared to the other times I have studied this subject, this program is fantastic." A rather high 90% agreed that the graphics were helpful, and a rather high 61% (compared to the overall agreement to this statement at 47%) agree, "I really had to think in order to get the right answer."

On the other hand, 34 of the 77 students, an exceptionally low 44%, agreed with the statement, "I think my friends would enjoy this program." This 44% compares to the 71% average agreement to the statement for all of the programs tested.

Overall, the students rated the program with a rather high rating of "92," compared to the average student rating of "75" for all of the tested programs.

Major idea remembered # one:



Major idea remembered # two:

being the good guy

Major idea remembered # one:

You had to get the right answer or you'll get blow up

TITLE: Mr. Long and Mr. Short
Intended Audience: Grades K-3
Curriculum: Reading and Spelling
Instructional Method: Game
Hardware Format Tested: TRS 80
Producer: Little Bee Educational Programs, P O Box 262, Massillon, OH 44648
Distributed by Little Bee Educational Programs
Cost: $12

Stated Objectives

"This program provides students with an enjoyable drill on the differentiation of short and long vowel sounds. The student is shown a word with a vowel underlined. The student determines whether the underlined vowel has a short or long sound. If the student responds correctly the underlined letter moves into the hand of a stick man who grows longer with a long vowel sound and shrinks with a short vowel sound. If the student's response is incorrect, the letter flies off of the screen. There are 48 words included in the program. During the program words are selected randomly. A session consists of ten words with the student given the option to continue for an additional 10 words until 40 words have been presented. Scoring is given at the end of the program."

Teacher Evaluations

Four first grade teachers evaluated this program. Each inticated experience with nine or more microcomputer programs prior to the evaluation and all had used at least five program with their students for classroom assignments.

The average time spent with the program was six minutes.

All four teachers gave this program exceptionally high grades (all A's) for the following areas: "this program meets its own stated objectives." "this program is suited for the intended grade level," "this program is likely to arouse student interest," "this program provides sufficient review without unnecessary redundancy," "feedback is consistent and provides remediation," and "this program provides a clear evaluation of the student's performance." High grades were also given for "learner responses require thought and are a challenge."

The "word list" was noted as being strong for first graders and the 40 words used seem to cover the basic drills needed. All of the teachers noted, however, the desire for more words and some control over the speed of the program so that it could be made even more challenging.

One teacher noted that "the break key can be used to break out of the program; it is very easy for a child to accidentally hit the break key instead of the arrow key," and thus the program stops.

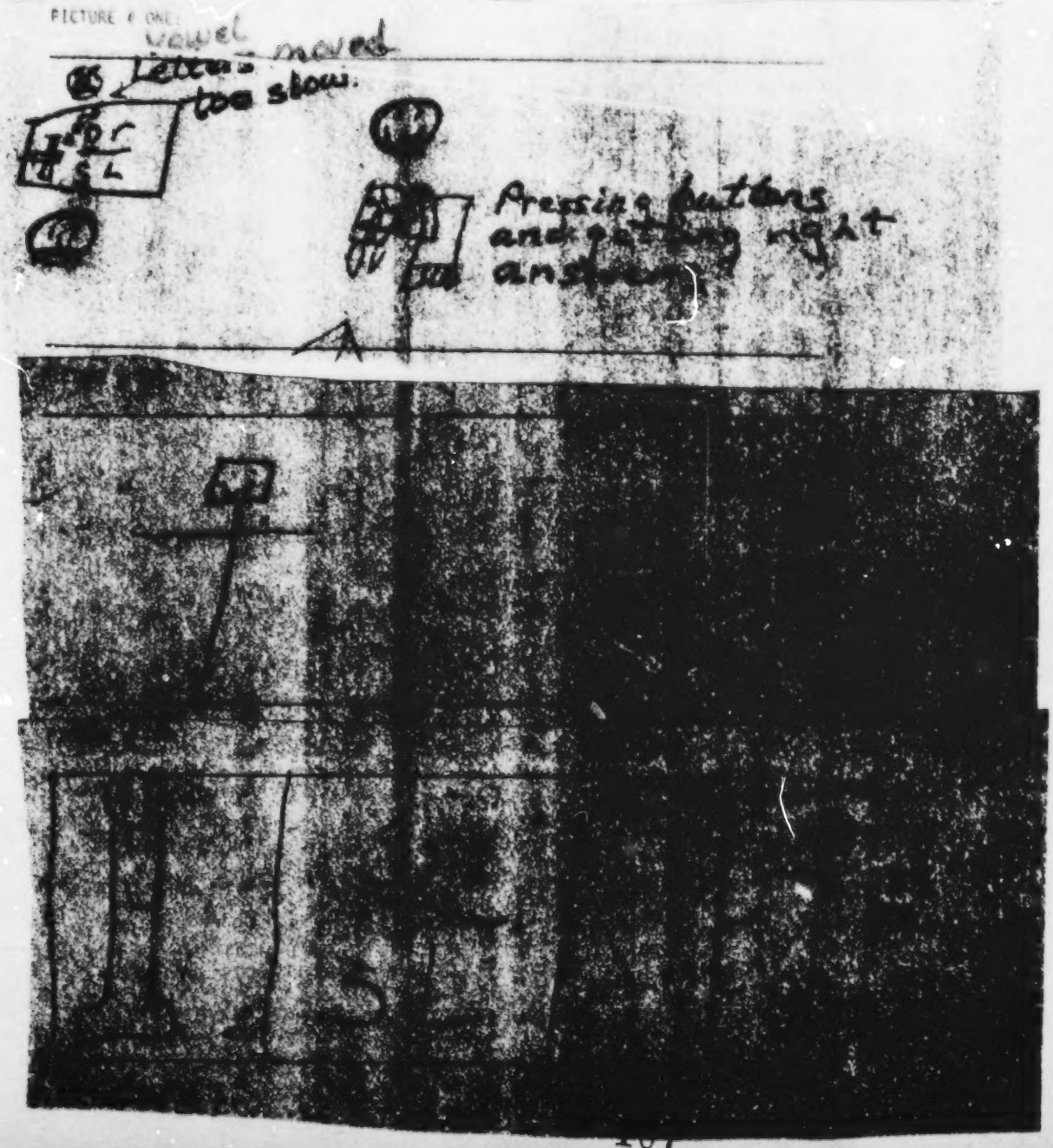
All of the teachers were ready to take this program into the classroom and put it to work for individual review and practice. All four of the teachers compared Mr. Long and Mr. Short to a similar program, Long & Short Vowel Spaceships. Each of the teachers favored Mr. Long and Mr. Short, although they also felt that both programs had a valid place in the classroom.

Overall, the teachers gave the program an averaged rating of "89," wel above the averaged overall rating of "73" given to the pool of programs field tested.

Student Evaluations

Twenty-two first graders spent an average of eight minutes with the program before completing an evaluation form.

The response rate to the program seemed to be strongly positive as 100% agreed with the statements "I would like to do this program again," "I think my friends in class would like to do this program," and "I could do this program without help from my teacher."



TITLE: Percentages: a Review Course
Intended Audience: Grades 7-12
Curriculum: Math
Instructional Method: Story Problems, Drill and Practice
Hardware Format Tested: Apple II
Producer and Distributor: Society for Visual Education, 1345 Diversey Parkway, Chicago, IL 60614
Cost: $663

Stated Objectives

"If your students have trouble working with percentages, this self-instructional micro package may give them just the help they need. 'Fractions, Decimals, and Percentages,' teaches users how to express numbers as fractions or decimals and how to compute percentages. In 'Discount, Taxes, Salaries and Profits,' students work problems with percentages that they may encounter at the store or on the job. The 13 lessons end with a mastery test."

Teacher Evaluations

One seventh grade math teacher spent nearly three hours with this program. The teacher had experience with two microcomputer programs prior to the field test.

The teacher's response to this program could be summarized in one word, "boring." Percentages: A Review Course was given failing grades for being able to "arouse student interest." Below average grades were given for "content of the program is accurate," and "relevant practice is given."

The teacher noted that the major weakness of this program was "poor grammar and very boring." The teacher added, "No way to compare wrong answer with right answer on the screen at the same time, and there is no way to skip in order to review without setting through the long and boring introduction again."

The teacher gave the program an exceptionally low rating of "30."

Student Evaluations

A total of 17 students from the seventh grade evaluated this program. All had prior experience with microcomputer programs as all of the students indicated they had worked with at least nine programs.

Average time spent with the series was very low however. Only 12 minutes were given to examine the program on the average. The entire series takes several hours to complete. Sixteen of the 17 students said they stopped working the program because they "got bored."

An exceptionally high percentage of the seventh graders (88%) indicated disagreement with the following statements:

"I'd like to do this program again,"
"I think this program is too hard,"
"If I could, I would take this program home to use it,"
"I think my friends would enjoy this program."

Seventy-one percent of the students agreed that, "the program was too easy."

Overall, the students gave the program an exceptionally low rating of "22."

TITLE: Pinball Math
Intended Audience: Grades 1-6
Curriculum: Math
Instructional Method: Game
Hardware Format Tested: Commodore 64
Producer: Taylormade Software, P O Box 5574, Lincoln, NE 68505
Distributed by Taylormade
Cost: $25

Stated Objectives

"Select one of four math operations (addition, subtraction, multiplication, and division), and one of three levels of difficulty and see how many games you can win. Easy level presents basic facts; hard level has two-digit divisors and multipliers, and asks an answer for each step in the calculation. Problems are shown using oversized numerals on the Commodore 64 and calculation is made from right to left. Watch the pinball graphics turn on and hear the random tune when you answer the problem correctly, and see the friendly sprite or special character take away incorrect answers and give the correct answer after three tries. Check the scoreboard after a session for the number of problems completed and time to do them, and watch your improvement."

Teacher Evaluations

Two elementary school teachers and one media specialist evaluated the program. All indicated experience with ten or more programs prior to the evaluation, including the use of ten or more programs with students in the classroom.

Each teacher worked with the program for an average of 45 minutes.

The teachers gave Pinball Math high grades (A's and B's) in all areas of evaluation. Exceptionally high grades (all A's) were given for "verbal and graphic information is well paced and clear," "program is likely to arouse student interest," "documents and printed guides give sufficient support," and "the program provides a clear evaluation of the student's performance."

Above average grades were given for "content of the program is accurate," "relevant practice or testing is consistently provided," and "learner responses require thought and are a challenge."

One teacher noted that he or she felt that the program was a little misleading in the division problems, "...they should subtract before they bring down the next number."

All of the teachers were ready to accept the program into the classroom as basic support to their current curriculum.

Overall, the teachers gave the program a rating of "85."

Student Evaluations

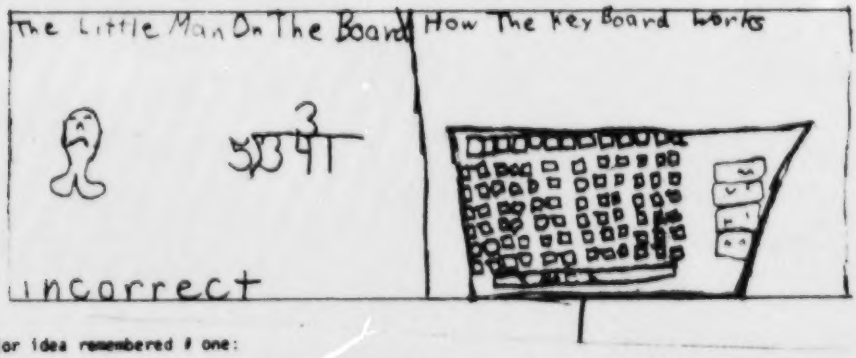
Thirty-four elementary school students from fourth grade to the eighth grade evaluated this program. When divided into two groups representing the two grade level extremes, there seemed to be no major difference between the evaluations of the fourth graders and the evaluations of the seventh and eighth graders. However, when the evaluations were divided according to the extremes found in experience levels, a few differences in the evaluations could be noted.

Nineteen of the students indicated experience with eight or more microcomputer programs prior to the field test activity, 15 indicated experience with fewer than two programs. Between these two groups, "experienced" and "inexperienced," a few differences seemed to be present. All of the inexperienced students agreed, "the graphics were helpful." The more experienced students were, as a group, not as impressed as only 58% agreed. Eighty percent of the inexperienced group agreed, "compared to other times I have studied this subject, the program was fantastic." Only 58% of the experience group agreed. None of the inexperienced group members felt the program was a waste of time, while four members of the experienced group agreed the program was a waste of time.

The most striking difference came with the statement, "I would like to be graded by my teacher on the work I did with this program." Ninety-three percent of the inexperience group agreed while only 42% of the experienced group agreed.

Overall, the inexperienced group rated the program with a rather high "88,' and the experienced group rated the program with a rather average "73."

Major idea remembered # one:



Major idea remembered # one:

when you got a wrong answer a little monster would came and eat the wrong answer

It helped me a lot and I got a kick out of it and it helped me with my math a lot with the problems I didn't understand

TITLE: Punctuation I : End Punctuation
Intended Audience: Grades 4-6
Curriculum: Writing Skills
Instructional Method: Tutorial
Hardware Format Tested: TRS 80, also available in Apple II+, Commodore PET, and Atari
Producer and Distributor: Educational Activities, P O Box 392, Freeport, NY 11520

Stated Objectives

"Introduces and gives practice on use of period, question mark, exclamation point; uses color, graphics and sound."

Teacher Evaluation

One third grade teacher spent ten minutes with this program. The teacher had experience with six previous microcomputer programs but had never used microcomputer software with his or her class prior to the field testing.

The teacher gave Punctuation I above average grades for "likely to arouse student interest," " relevant practice or testing is consistently provided," and "content of the program is accurate." The teacher graded the program at the "A" level for "learner responses require thought and are a challenge." The teacher graded the program as being below average for "clear evaluation of the student's performance."

The teacher was ready to accept the program into the classroom to be used as basic support of current instruction.

Overall, the teacher rated the program at "70."

Student Evaluations

Eighteen third graders were given 15 minutes each to examine this program before completing an evaluation form. The students had experience with fewer than four programs each prior to the field test.

All of the students agreed that they wanted to to the program again, and that their friends would enjoy the program. Seventy-two percent, a fairly high response compared to the other programs field tested, agreed that they would like to be "graded by my teacher on the work I did with this program."

Only half of the students indicated they got the correct answer on the first try. An exceptionally nigh 88% agreed that, "This program helped me when I made a mistake."

The program seemed to be easy for these inexperienced third graders to follow as only one agreed that, "I got lost and didn't know what to do."

An exceptionally high 83% agreed with the statement, "Compared to the other times I have studied this subject, this program was fantastic."

Overall, the students rated Punctuation I very high with a averaged rating of "96."

TITLE: Reading Readiness: Visual Discrimination
Intended Audience: Grades K-2
Curriculum: Number Identification and Letter Identification
Instructional Method: Drill and Practice
Hardware Format Tested: TRS 80, also available in Apple II+ and IIe
Producer and Author: EMC Publishing, Changing Times Education Service,
300 York Av, St. Paul, MN 55101
Distributed by EMC
Cost: $24

Stated Objectives

"This program is designed to provide practice in developing visual discrimination. Three types of symbols -- numbers, letters, and graphic symbols -- are generated by the program, and up to five symbols of the same type can be selected. The student will develop visual discrimination through the matching of various kinds and numbers of randomly generated symbols."

Teacher Evaluations

Two kindergarden teachers examined this program. Both had experience with using four microcomputer programs in the classroom prior to this field test.

Both of the teachers spent 25 minutes working through the program before completing an evaluation form.

This program received straight A's in all areas from the teachers. High grades were given for "likely to arouse student interest," "content of the program is accurate," "verbal and graphic information is well paced and clear," "learner responses require thought and are a challenge," and "the program provides a clear evaluation of the student's performance."

The teachers both indicated that they could use the program all year, "...we could start out at a low level and work up to higher levels."

The only weakness noted was that the teacher always had to restart the program. With time, however, even kindergarden students will adapt to the equipment and bring up the program as quickly as anyone else using microcomputer software. Indeed the program guide notes, "It is expected that the teacher would help any student that is using the program for the first time to understand how the program works."

Overall, the teachers gave this program an exceptionally high rating of "99."

Student Evaluations

There were no student evaluations of the program Reading Readiness.

TITLE: Regions of the United States
Intended Audience: Grades 6-10
Curriculum: Geography, History
Instructional Method: Tutorial
Hardware Format Tested: Apple II
Producer and Author: Educational Activities, Michael Roessler
Distributed by Educational Activities, P O Box 392, Freeport, NY 11521
Cost: $61

Stated Objectives

"Regions of the United States is designed as an aid in the teaching of United States geography. The first part, "The Fifty States," introduces the states by location and shape, then challenges the user to identify the states as they are selected at random by the computer. In part 2, "The Regions," the computer selects a region of the United States and presents clues about it, one at a time. Students are scored on how many (up to 3) they need to identify each of the regions chosen."

Objectives:
1. to teach recognition of states on an outline
2. to teach the proper spelling of the states' names
3. to stimulate interest in the regions of the United States
4. to reinforce basic facts about the regions of the United States

Teacher Evaluations

Three teachers evaluated this program, two representing secondary social studies classrooms and one teacher from the special education area (responsible for the social studies units in the special education class). All three teachers were rather inexperienced with the use of microcomputer programs as none of them had examined more than three programs prior to this field test and none of them had attempted to use a microcomputer program with their students prior to completing this evaluation.

The teachers spent an average of 35 minutes with the program before completing the evaluation form.

The program received above average grades in all areas but one, as the teachers noted slow pacing in a few areas. One teacher noted a very slow loading time of over 90 seconds. The program received very high marks (A's) for "provides a clear evaluation of the student's performance," "instructional approach used suits the program's content," and straight B's from all three teachers for "program is suited for its intended grade level." The teachers graded the program to be average for "likely to arouse student interest."

The teachers noted specific strengths of the program to include "a personal address to the student," " excellent feedback and continuous scoring," and "excellent graphics." Previous programs dealing with the states have had problems with getting New York or Maine to really look like the outline of the state. Colorado and Wyoming, on the other hand, have never been a problem.

One teacher discussed a minor weakness, "...'regions' of various parts of the country are not consistent from text to text...some students may get confused if his concept and instruction as to what states are in 'x' region become different from one situation to the next...proves difficult for lower ability students, other adapt."

The teachers saw the program being used as a tool for review, but one was willing to use the program as a test instrument.

Overall, the teachers averaged rating of the program was "85."

Student Evaluations

Twenty-six students from the ninth grade spent an average of 28 minutes with the program before completing an evaluation form. The students reflected little prior experience with microcomputer programs as most indicated this to be only the second or third program experienced in school.

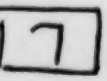
All 26 rated the graphics as helpful and all indicated that the program was easy to follow and they did not get lost. An average number of students (77%) agreed that they would like to do the program again and 73% recommended the programs to friends.

A rather high percentage (85%) indicated they agreed, "I would like to be graded by my teacher on the work I did with this program." A relatively low 38%, however, agreed with the statement, "I really had to think in order to get the right answer." Forty-two percent agreed that the program was too easy.

The most striking note in the descriptions of ideas learned was the admission on the part of six students that they learned to spell the name of a few states they did not know before.

Overall, the students gave the program an averaged rating of "82."

Major idea remembered # one:

the locations of the states. Also my miscalculations. EXAMple:  numbers placed corectly in the aproperate place

Major idea remembered # two:

climates of the different regions. Products and other minerals.

TITLE: Simple Machines
Intended Audience: Grades 5-12
Curriculum: Basic or General Science
Instructional Method: Tutorial with problem solving
Hardware Format Tested: Apple II
Producer: Micro Power and Light Co., 12820 Hillcrest Road, 224, Dallas, TX 75230
Distributed by Society for Visual Education, Att: Jim Forbes, 1345 Diversey Parkway, Chicago, IL 60614

Stated Objectives

"Upon successful completion of the program, the student should be able to select the appropriate simple machine to use to solve any number of real-life applications. The six simple machines: lever, pulley, wheel and axle, inclined plane, wedge, and screw."

Teacher Evaluations

Five elementary school teachers and media specialists evaluated this program. The three teachers represented grades four and five. All five of the evaluators indicated experience with eight or more programs prior to the field testing.

On the average, each teacher spend 50 minutes with the program.

Simple Machines received above average grades (A's and B's) for "content of this program is accurate," and "learner responses require thought and are a challenge." Average grades (B's and C's) were given for "program meets its own stated objectives," "program is likely to arouse student interest," "verbal information is well paced and clear," and "feedback is consistent and provides remediation." Below average grades were given for "relevant practice or testing is consistently provided," "documents and printed guides give sufficient support," and "the program provides a clear evaluation of the student's performance."

The teachers felt that the descriptions and visuals were clear and very understandable. One teacher, however, questioned the quality of "the practical application questions...these questions did not go along with each simple machine and did not seem to be pertinent examples or uses."

The teachers seemed willing to accept and utilize the program in the classroom. One teacher noted that the program would have even more merit if used with "hands-on models to manipulate along with the program examples."

In addition to the normally mentioned independent study use of the program, one teacher suggested that the information from Simple Machines would help the student prepare for the "Iowa Tests."

Overall, the five teachers gave the program an averaged rating of "83."

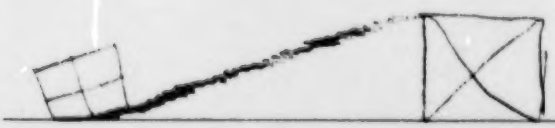
Student Evaluations

Nine students from the fourth grade spent 30 minutes each with this program. None of the students had prior experience with more than three programs.

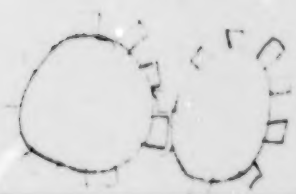
Even though they were one grade below the recommended grade level for the program, none of the students felt that the program was "too hard," and none of them felt that is was "too easy" either. Six of the students (67%) agreed, "I really had to think in order to get the right answer." However, from this group, 67% also felt sure enough about their work that they agreed, "I would like to be graded by my teacher on the work I did with this program."

Overall, the students gave the program a very high rating of "93."

Major idea remembered # one:



Major idea remembered # two:



TITLE: Snooper Troops Case #1: The Granite Point Ghost
Intended Audience: Grades 4 to adult
Curriculum: Logic, Research Skills
Instructional Method: Game, Problem Solving
Hardware Format Tested: Apple II and Commodcre 64, also available in Atari or IBM
Producer and Author: Spinnaker Software Corporation, Tom Snyder Productions
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $45

Stated Objectives

"Snooper Troops detective games help children learn to take notes, draw maps, classify and organize information, and help to develop vocabulary and reasoning skills."

"Someone is trying to scare the Kim family right out of their house. But who? And why? As a Snooper Trooper, your job is to find out. But it will take some daring detective work. You'll have to question witnesses, uncover background information, and even search dark houses to find the facts."

Teacher Evaluations

The Snooper Troops series has received very strong and favorable reviews. It has become one of the few early microcomputer games that really attempts to place the learner in control of the educational experience and to allow the learner to demonstrate skills of organization and record keeping. Actually, the learner has no choice but to keep complete records and to construct a detailed map of events. Without such concrete records the hundreds of clues become lost and meaningless. All the more reason a true judgment of this program can't be made unless the teacher or student has worked with the program for a couple of hours. Several of the adults examining this program became frustrated within ten to 15 minutes and aborted the program feeling that there could be no child with enough endurance to struggle through. This program can offer a good test to determine those who feel comfortable in a free inquiry learning environment and those who will escape such nonstructure for the security of rote practice and quick feedback.

Three elementary school teachers examined this program, one being a half-time media specialist and the other two representing grades five and six. As was expected, both extremes were represented in the evaluations. The two teachers giving the program 90 or more minutes gave it high grades while the teacher investing only 20 minutes gave not a single grade above "D" and gave the program one of the lowest ratings of all programs evaluated.

All of the teachers had experienced ten or more programs prior to this evaluation.

When all three evaluations are combined and summarized, Snooper Troops 1 receives average to above average grades for "likely to arouse student interest," and "learner responses require thought and are a challenge."

One teacher wrote, "The kids loved it!!!"

Overall, the averaged ratings given by three teachers was "55."

Student Evaluations

Twenty-one students examined Snooper Troops 1. These students were from grades five to seven. All had experienced four or more programs prior to this evaluation.

Time invested in this program by the students ranged up to 4½ hours. Average time invested was 150 minutes or 2½ hours. Even with that much time given to the program, 87% indicated they would like to do it again.

None of the students felt the program was too difficult. Ninety percent seemed to feel comfortable working the program with their classmates. It seems that with this program, the more heads, the better. All of the students agreed that, "If I could, I would take this program home to use it."

Some of the student comments included:

"I remember the graphics were neat & I really liked being able to call on a telephone."

"I think this game is fun and takes a lot of thinking...but it is really fun!!"

"I also remember that the graphics were good...you have to write down so many things...the game was challenging."

Overall, the students gave the program an exceptionally high rating of "92."

Major idea remembered # one:

The program should have a layout or a map of all streets, and phone booths

Major idea remembered # two:

you should be able to chase the jogger

TITLE: Snooper Troops Case #2: The Disappearing Dolphin
Intended Audience: Grades 4 to adult
Curriculum: Logic, Research Skills
Instructional Method: Game, Problem Solving
Hardware Format Tested: Apple II, also available in Commodore 64, Atari and IBM
Producer and Author: Spinnaker Software Corporation, Tom Snyder Productions
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitol, Indianapolis, IN 46204
Cost: $45

"Snooper Troops detective games help children learn to take notes, draw maps, classify and organize information, and help develop vocabulary and reasoning skills."

"Where is Lily the Performing Dolphin? The police don't know, but on May 11 someone tied up Pete and Mike Tabasco and then stole Lily right out of her pool. So now, you're on the case. How many weeks will you need to find out what happened to Lily and why? The police think Fisheye looks suspicious. But there are seven other suspects, too. If you find the guilty one, you'll get a complete confession."

Teacher Evaluations

Three teachers from the "gifted program" for grades 5 to 7 evaluated this program. All three had extensive experience with microcomputer programs as all indicated the use of ten or more programs with students in the classroom prior to this evaluation.

All three worked with the program for at least three hours, one for over four hours, before completing the evaluation form.

As with Snooper Troops Case #1, this program offers a great deal of challenge and frustration to the teacher as well as to the student. It is one of the first examples of a microcomputer program format that seemed to work and be accepted to a high enough degree that a spin-off was possible. Not intended to be a pun on the producer (Spinnaker), but such spin-offs will become more and more frequent over the next couple of years as we discover what formats work. Authors will allow a set format to become restocked with new terms. Students and teachers, familiar with procedures from the first program, will be able to work with new content. Or, more likely, a variety of programs with the same objectives will be available for a class which allow for developing the same skills and yet each member of the class will face different terms or content with which to deal.

Generally, the teachers gave Snooper Troops Case #2 average to below average grades, but all insisted that the program poses a challenge that will "arouse student interest." One teacher noted, "The thought process necessary to solve the problem are demanding." The teachers felt the program was one of the few on the market to provide problem solving situations for small groups to meet. Members of the groups had to work together and maintain a clear documented record of each clue in order to begin to suggest solutions.

The major problem of the program seemed to be in the great deal of time given to simply driving a car or knocking on doors. Snooper Troops Case #2 was given failing grades for "verbal and graphic information is well paced and clear." The program seemed especially slow for students and teachers who had experienced the special effects of the program by working with Snooper Troops Case #1 previously.

The teachers gave the Case #2 a rather low rating of "60."

Student Evaluations

Thirty-three fifth graders from the "gifted program" evaluated this program. Eleven of the 33 had prior experience with ten or more programs while the other 23 indicated experience with fewer than three programs. Responses from these two groups did not, however, differ to any great extent.

All 33 students indicated working with the program for at least two hours, with several noting up to four hours of work. The average time spent with Snooper Troops Case #2 was 197 minutes.

All 33 of the students agreed that, even after several hours of working with the program, "I'd like to do the program again." None of the students left the program because they got bored. Twenty-seven (81%) of the students agreed, "I really had to think in order to get the right answer." This is an exceptionally high agreement compared to the average 47% agreement with the statement for all of the programs evaluated. All but two of the students wanted to take the program home to complete it.

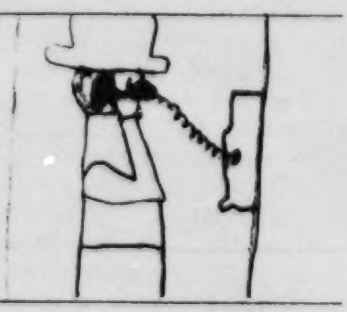
An exceptionally high 79% of the students disagreed with the statement, "I would like to be graded by my teacher on the work I did with this program." On the average, 45% of the student responses to this statement for the entire pool of programs evaluated disagreed.

Only one student agreed that "this program was too easy."

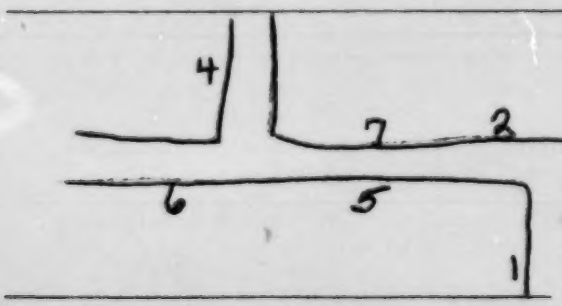
Overall, the students rating of the program was much higher than the teacher rating, as the students rated Snooper Troops Case #2 at "86."

Major idea remembered # one:

Major idea remembered # one: there were too many people involved.



Major idea remembered # two:



I remember sneaking in houses and taking snapshots of clues

TITLE: Spellagraph
Intended Audience: Grades 2-10
Curriculum: Spelling
Instructional Method: Game, Rebus Word-Picture Puzzles
Hardware Format Tested: Commodore 64, also available in Apple II+ & IIe, IBM-PC, and Atari
Producer: Design Ware, 185 Berry Street, Building Three, Suite 158, San Francisco, CA 94107
Distributed by Marbaugh, Att: Leslie Hay, 601 N. Capitor, Indianapolis, IN 46204
Cost: $40

Stated Objectives

"When playing Spellagraph, children select the spelling list they want to use in the game. They can see the words on the screen before they begin to play. Just as teachers use the word in a sentence during spelling tests, the Spellagraph program presents a sentence with the word missing. The player must decide which of the spelling words completes the sentence and then spell the word correctly. If the word is misspelled, the computer shows the correct spelling, and the player tries to spell it again."

Teacher Evaluations

One media specialist evaluated this program. The elementary school media specialist had experience with ten or more programs prior to the evaluation.

The media specialist spent 45 minutes with the program before completing an evaluation form.

The media specialist gave the program average to slightly above average grades in all areas of evaluation. Those areas receiving above average grades included "learner responses require thought and are a challenge," and "content of the program is accurate." Average grades were given for "likely to arouse student interest," "feedback is consistent and provides remediation," and "information is well paced."

The loading time is a major problem with this program. A wait of three to five minutes, or more, can seem "like eternity." Once the program is up and ready, however, the experience with the Rebus word-picture puzzles seems to be very rewarding.

Overall, the media specialist rated the program at "80."

Student Evaluations

Six eighth graders spent an average of 29 minutes each with this program.

Three had worked with fewer than three programs prior to this field test, and three had worked with eight or more.

All six, because of the long loading time, had to leave before completing one game. Five of the six agreed, "I'd like to do the program again."

All of the students agreed, "This program helped me when I made a mistake," and "If I could, I would take this program home to use it." All of the students also agreed, "I think my friends would enjoy this program."

Comments from the students included:

"I remember I had a big choice in choosing what kind of rebus I wanted to make."

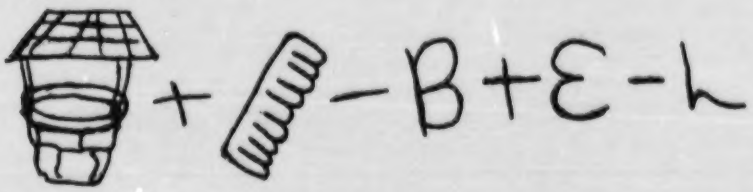
"It corrected me when I was wrong and asked the question again."

Following the rating of the program by giving it an overall score of "35," one student wrote, "...it would have been at least 60 if it didn't take so long to load every command, but it takes ages to finally get to play."

Overall, the averaged rating from the group was "67."

Major idea remembered # two:

Guess the



Major idea remembered # one:

Parts of speech and grammar.
Sentence patterns
Guessings words to make a rebus
(Rebus)

TITLE: Spellicopter
Intended Audience: Grades 2-10
Curriculum: Spelling
Instructional Method: Game
Hardware Format: Commodore 64, also available in Apple II+ & IIe, IBM-PC, and Atari
Producer: Design Ware, 185 Berry Street, Building Three, Suite 158, San Francisco, CA 94107
Distributed by Marbaugh, Att: Leslie Hay, 601 Capitol, Indianapolis, IN 46204
Cost: $40

Stated Objectives

"Spellicopter is a spelling adventure game. To play the game, you pilot your helicopter through crowded skies and over mountainous terrain to the Letter Field where you pick up words, letter by letter, in the right order. Then you fly back with your cargo to the landing field and refuel for the next mission.

You've got to be a good pilot or you'll never reach your destination. Avoid high mountains, lightning bolts and flying objects as you fly to the Letter Field, or your chopper will explode. When you get there, figure out the spelling word fast so you don't waste fuel. Fly your chopper over the letters you want and pick them up, one by one, to spell the word. While you're spelling, watch out for the tree and keep an eye out for a pesky UFO. And be sure you don't run too low on fuel or your won't get home!"

Teacher Evaluations

Four teachers evaluated the program, two are elementary school media specialists and two are fourth through sixth grade classroom teachers. All four indicated experience with ten or more microcomputer programs prior to the evaluation, including ten or more programs used in the classroom.

Each of the teachers spent 50 minutes with the program before completing an evaluation form.

The teachers gave the program slightly above average grades. High grades (A's and B's) were given for "program meets its own stated objectives," "program is suited for its intended grade level," and "learner response requires though and is a challenge." Average grades were given for "likely to arouse student interest," "verbal and graphic information is well paced," and "feedback is consistent and provides remediation."

Teachers noted that the students enjoyed playing the game. Whenever a word was misspelled, "the computer shows the correct spelling...then the player tries again."

The teachers summarized weaknesses, "The instructions are difficult for younger children to understand, and in many cases the teacher would have to assist the student." Also, "this program has a major problem in taking so long to load."

The teachers suggested additional uses for the program:

"This program could be used with the weekly spelling program by supplying the spelling words on a list and having students play the game in order to learn the words."

"This program could also be used in vocabulary development in areas of social studies, reading or science by supplying the necessary words for each project. The teacher should be able to control and add special terms when needed."

One teacher recommended Spellicopter over the Scholastic Spelling Program because of the greater reinforcement given by Spellicopter.

Overall, the teachers rated this program at "83."

Student Evaluations

Thirty-seven fourth graders evaluated this program. None of the students had experienced over five microcomputer programs prior to this field test, most of them were looking at their first program.

On the average, the student worked with the program for 15 minutes before completing the evaluation form.

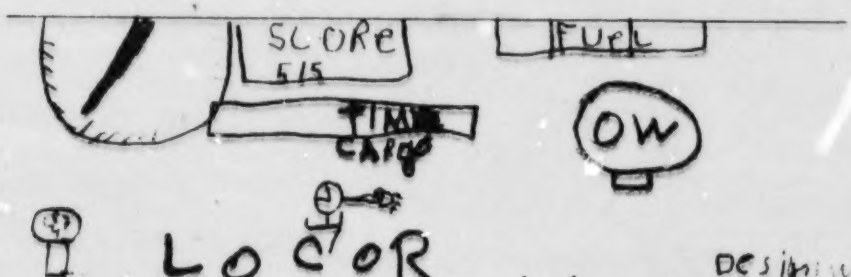
An exceptionally high 89% agreed, "Compared to the other times I have studied this subject, this program was fantastic." Eighty-six percent wanted to do the program again.

A rather high 73% wanted to work with the program independently, without any assistance from classmates or group competition.

Half of the students agreed, "this program was too easy for me."

Overall, the students rated Spellicopter at "85."

Major idea remembered # one:



What are your eyes Designed?

This is a fun game, and helped me with spelling but there was way to much loading.

Major idea remembered # one:

the neat sound effects.

TITLE: Syllabication
Intended Audience: Grades 3-6
Curriculum: Reading, Spelling
Instructional Method: Drill and Practice
Hardware Format Tested: TRS 80
Producer and Author: Atron International, Box 8825, Fort Collins, CO 80525;
Carl Goldner
Distributed by Atron
Cost: $33

Stated Objectives

A drill and practice approach to the basic rules and application of rules for syllabication.

Teacher Evaluations

Two fourth grade teachers evaluated this program. Both had experience with eight or more programs prior to the field testing and both had used at least six programs with their students in class before completing this evaluation.

Both teachers invested 25 minutes to work with the program before completing the evaluation form.

The program was given high grades (A's) for "provides a clear evaluation of the student's performance," "learner responses require thought and are a challenge," and "content of the program is accurate."

Average grades (B's and C's) were given for "verbal and graphic information is well paced and clear," and "program provides sufficient review without unnecessary redundancy."

Below average grades (C's and D's) were given for "program is likely to arouse student interest," and failing grades were given for "documents and printed guides give sufficient support."

Although both teachers agreed that the program gives good drill exercises and "concrete analysis of the student's progress," both also did not like the requirement that the teacher had to reprogram the cassette after every student.

Both teachers initially graded the program down for arousing student interest, but noted after observing the students use of the program they had to reconsider. "After looking at my students' evaluations I was surprised to see they all rated it highly...so perhaps I would reconsider using it after I have introduced the (syllabication) rules myself."

Overall, the teachers rated the program at a slightly below average "68."

Student Evaluations

Eleven fourth graders evaluated Syllabication. Only three of the students had prior experience with microcomputer educational programs.

The students averaged 16 minutes with the program before completing evaluation forms.

Eighty-two percent agreed, "I'd like to do this program again," and a rather high 73% agreed, "I would like to be graded by my teacher on the work I did with this program." An exceptionally high 82% agreed, "I really had to think in order to get the right answer."

None of the students felt that the program was too long or a waste of time. All of the students agreed, "I think my friends would enjoy this program." Only two of the eleven agreed that the program was too easy.

Overall, the students gave the program a high rating of "95."

Major idea remembered # one: (HAm)mer)

Major idea remembered # two: PE (CAN)

Major idea remembered # two: That you put a dash after the secound word.

TITLE: Telling Time Computer Set
Intended Audience: K-3
Curriculum: Basic number skills
Instructional Method: Rote Drill
Hardware Format Tested: TRS 80, also available in Apple II, Atari and Commodore PET
Producer: Orange Cherry Media
Distributed by Filmcraft Audiovisuals, Att: Hank Glesing, 5323 W 86, Indianapolis, IN 46268
Cost: $34

Stated Objectives

The program explains how to tell time. Students learn how to read minutes as well as hours.

Teacher Evaluations

Four first grade teachers spent ar average of 15 minutes examining this program. All of the teachers indicated experience with eight or more programs prior to this evaluation, however, two of the teachers had experienced the utilization of a microcomputer program with their students, and two had no such experience.

Generally, Telling Time Computer Set received average to below average grades in all areas evaluated. Failing grades were given for "content of this program is accurate," "verbal and graphic information is well paced and clear," and the teachers felt that there was little chance of the program being able to arouse student interest. Average grades (B's and C's) were given for "relevant practice or testing is consistently provided," and "learner responses require thought and are a challenge."

Teachers noted the program did give graphics in a clear and logical manner, however all of the teachers commented that they would not use the program because "the hour hand is not placed correctly when half-hour problems are given...this is misleading and contradictory to what is taught in class ... the hour hand is between two numbers on the half hour and not directly on one number.

One teacher did compare Telling Time Computer Set to a similar program, Clock Face, and the teacher felt that neither could be highly recommended. Clock Face has "too many directions for the children to follow."

The averaged rating for this program from the teachers was very low, one of the lowest given to any of the programs field tested. The rating was "13" compared to the average rating of "73" for all of the programs examined.

Student Evaluations

Seven third graders evaluated the program. All had experienced four programs prior to the field testing.

The students were allowed to work with the program for about 12 minutes each before completing the evaluation form.

All of the third graders felt the program was too easy for them, but six of the seven were ready to recommend the program to their friends in class. Only one of the students agreed that "if I could, I would take this program home to use it." None of the students agreed with the statement, "compared to other times I have studied this subject, this program was fantastic."

Overall, the third graders rated the program at an averaged "8."

Fifteen first graders were given an average of 15 minutes each with the program. All of the students had experience with at least four microcomputer programs prior to the evaluation. The students gave a 100% agreement to "I would like to do this program again," and "I liked the pictures in this program." Eighty percent agreed that "I think my friends in class would like to do this program," and "I could do this program without help from my teacher."

TITLE: Thinking Skills
Intended Audience: Grades 2-7
Curriculum: Logic and Problem Solving
Instructional Method: Skills Practice and Game
Hardware Format Tested: TRS 80
Distributed by Sunburst Communications, 39 Washington Av, Pleasantville, NY 10570
Cost: $49

Stated Objectives

"Three programs sharpen logic and thinking skills. 'Gemini' teaches students to deal with concepts and rules by figuring out how an extraterrestrial farmer sorts his flock. 'Sort-a-Set' challenges students to formulate a logical sorting scheme. In 'Code Quest' students use logic to discover a secret combination of letters and numbers."

Teacher Evaluations

One fifth grade teacher evaluated this program. The teacher had experience with ten or more programs prior to the field testing.

The teacher spent thirty minutes with the program before completing an evaluation form.

The program received high grades (A's or B's) in all areas of evaluation. The teacher gave the program an "A" level grade for "program meets its own stated objectives," "program is likely to arouse student interest," "content of this program is accurate," "feedback is consistent and provides remediation," "learner responses require thought and are a challenge," and "documents and printed guides give sufficient support."

The teacher gave a grade of "B" for "program provides sufficient review without unnecessary redundancy," and "relevant practice or testing is consistently provided." The teacher expressed concern that a final test or a review test was not required as a part of the program.

The teacher emphasized that the major strength of the program is in the motivation of the students. "Student interest was really stimulated by this program, especially 'Code Quest, Level 2'."

The teachers suggested the following utilization of the program, "This program would fit well in an independent study situation...it is also good practice in critical thinking which is an important concept on the IQ tests."

The teacher agreed that "this microcomputer program introduces a new content area and additional skills not currently required of my students and I would welcome it as an ESSENTIAL new part of the instructional unit."

Overall, the teacher gave the program an exceptionally high rating of "98."

Student Evaluations

Seventeen fifth graders evaluated this program. All of the students had prior experience with nine or more microcomputer programs.

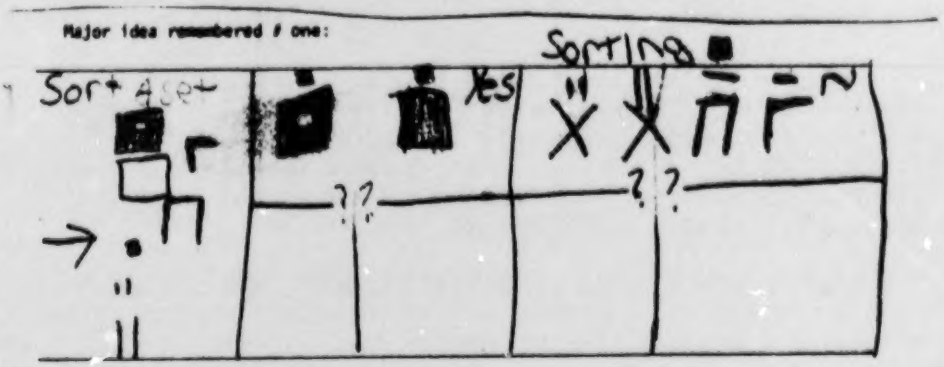
Only a brief time was invested by each student, however, before completing an evaluation form as each student worked with the program for ten minutes.

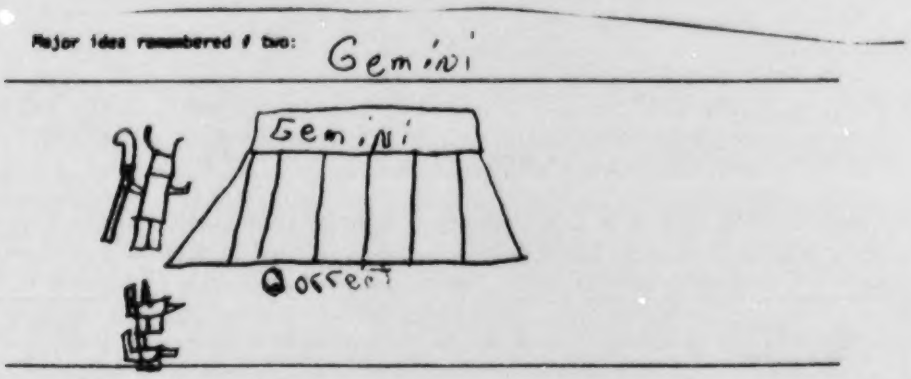
An exceptionally high 71% agreed, "I really had to think in order to get the right answer." Thirty-five percent, however, agreed that they got the answer right on the first try and 41% agreed that the program was too easy.

Seventy-one percent, well within the normal agreement response from the entire pool of students, agreed that they would like to take the program home.

Forty-one percent, just below the normal 55% agreement of the entire student pool, agreed "I would like to be graded by my teacher on the work I did with this program."

Overall, the students gave the program a slightly above average rating of "80."





TITLE: Typing Tutor and Word Invaders
Intended Audience: Grades 4-12
Curriculum: Keyboarding, Typing Skills
Instructional Method: Skills Practice, Game
Hardware Format Tested: Commodore 64
Producer: Academy Software, P O Box 6277, San Rafael, CA 94903
Distributed by Academy Software
Cost: $20

Stated Objectives

"Typing Tutor teaches the keys in the proper progression, and automatically advances to new keys in gradual steps as skills develop. Mistakes are identified, typing speed is indicated. Work Invadors has a speed selection ranging from beginner to advanced. Speed and errors are calculated and displayed."

Teacher Evaluation

One teacher evaluated this program. The teacher is from the Gifted Program for grades 5-7. He or she indicated past experience with ten or more programs and experience with the use of six programs in the classroom.

The teacher worked with the program for 40 minutes before completing the evaluation form.

The program was given average grades for "likely to arouse student interest," "suited for its intended audience," and "relevant practice or testing is consistently provided." A grade of "A" was given for "verbal and graphic information is well paced and clear," and "the program provides a clear evaluation of the student's performance."

The teacher noted that there was "no correlation between capital letters in Invadors and Tutor." The teacher suggested, "...when introducing a new key, show proper fingering,...when introducing capital letters, show how."

The teacher rated this program over the other similar programs examined, although he or she could not remember the names of the previous programs.

Overall, the teacher gave this program a rating of "90."

Student Evaluations

Twelve students from the sixth grade spent an average of 120 minutes working with this program before completing an evaluation. Eight of the students had worked with eight or more programs prior to the field testing, and four had worked with fewer than three programs.

Even though they had drilled for three hours with the program, all 12 students agreed with the statement, "I'd like to do this program again." All agreed that the program was not a waste of time and none of them felt that the program was too long. Neither did any of them feel that the program was too hard as it increased in difficulty as they got better.

All of the students agreed, "If I could, I would take this program home to use it." All but one student recommended the program to their friends. Eight of the students (67%) agreed that they "would like to be graded by the teacher on the work completed with this program."

Overall, the students gave the program an averaged score of "87."

Major idea remembered # two:

show me how many words
I write a minutes
and now I don't have
to look at the keyboard
anymore

I would very much like
to do this again!

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY / ADDRESS / ADDRESS / CITY / COMMENTS	VEND.	PROD.	PREV.	SERVICE
	SALES REPRESENTATIVE			
A B COMPUTERS 252 BETHLEHEM PIKE COLMAR, PA 18915	Y		Y	GOOD
ABRAXAS FILMS P.O. BOX 1416 EUGENE, OR 97440 RESTRICTIONS ON PREVIEW	Y	Y	Y	GOOD
ADDISON WESLEY PUBLISHING CO 2725 SAND HILL RD MENLO PARK, CA 94025 SAME COMPANY THAT PRODUCES BOOKS	Y	Y	Y	EXCELLENT
ALTERNATE SOURCE (THE) 704 N PENNSYLVANIA LANSING, MI 48910	Y		Y	GOOD
AMERICAN MICRO MEDIA P.O. BOX 306 RED HOOK, NY 12571	Y	N	Y	VERY SLOW
AMERICAN PERIPHERALS 122 BANGOR ST. LINDENHURST, NY 11757 DOES NOT ALLOW PREVIEW	Y	N	N	
ANTRON INTERNATIONAL P.O. BOX 8825 FORT COLLINS, CO 80525 REP. CARL GOLDNER/SLOW RESPONSE	Y	N	Y	POOR

TITLE: Understanding Computers
Intended Audience: Grade 6 and up
Curriculum: Social Studies, Language Arts, Computer Literacy
Instructional Method: Tutorial
Hardware Format Tested: Apple II
Producer and Distributor: Encyclopaedia Britannica Educational Corporation, 425 N. Michigan, Chicago, IL 60611
Cost: $257

Stated Objectives

Objectives given in the teacher's manual:

1. Keyboarding. Students will be able to
   a. type numbers, letters, special characters, and punctuation
   b. correct errors
   c. find keys quickly
2. Computer features. Students will learn that
   a. computers can calculate quickly and accurately
   b. computers can display and animate graphics
   c. computers can produce sound and music
   d. computers have memory
3. Computer history. Students will learn that over time
   a. computers have become faster
   b. computers have become smaller
   c. computers have become less expensive
   d. computer technology has changed from vacuum tubes to transistors to integrated circuits

Teacher Evaluations

Seven teachers from language arts and social studies and two media specialists examined this program. All were from the middle school environment. All had prior experience with seven or more microcomputer programs. Each teacher spent an average of 29 minutes with the program prior to completing an evaluation form.

Understanding Computers was given above average grades for "program meets its own stated objectives," "program is likely to arouse student interest," "program is accurate in content," and "verbal and graphic information is well paced and clear."

The program received average grades for "relevant practice or testing is provided," "learner responses require thought and are a challenge," and "program provides sufficient review without unnecessary redundancy."

Generally, the teachers seemed impressed with the program noting it as a "good and basic introduction to the understanding of computers." The teachers accepted the program as an essential piece of material in developing a new unit on computer literacy.

Overall, the teachers rated the program at "74."

Student Evaluations

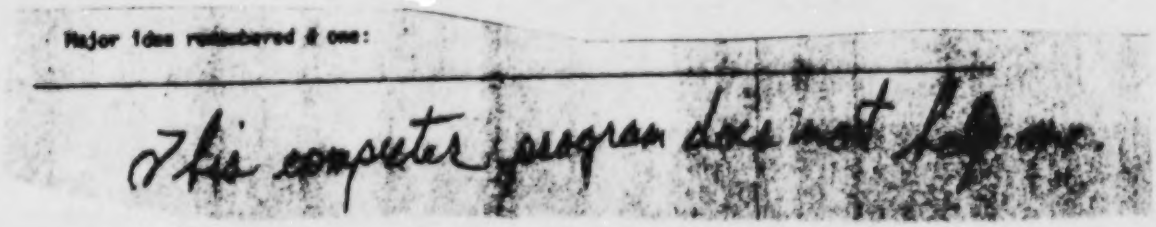
Fifty-four students from the sixth and seventh grades spent an average of 31 minutes examining the program. Four of the students indicated they had experience with ten or more microcomputer programs, but the rest of this large group was experiencing its first or second microcomputer program for instructional purposes.

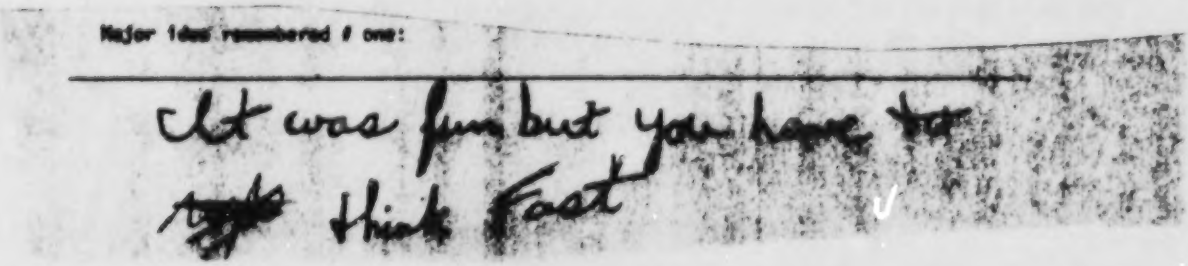
Fifty-four percent, below the average 74%, agreed that they would like to do this program again. Only 31% agreed that "I really had to think in order to get the right answer."

Generally, the student responses to the criterion statements were very similar to the overall field of responses by the students. For example, 52% agreed that "compared to the other time I have studied this subject, this program was fantastic," and 59% agreed that "I think my friends would enjoy this program."

One seventh grader commented, "It was fun, but you had to think fast." Another wrote, "...the program tried to build up our mind like a computer."

Overall, the students gave the program a average rating of "71."





TITLE: Up for Grabs
Intended Audience: Grades 3-12
Curriculum: Reading and Spelling
Instructional Method: Game
Hardware Format Tested: Commodore 64, also available in Atari
Producer: Spinnaker Software
Distributed by Marbaugh, Att: Leslie Hay, 601 N Capitol, Indianapolis, IN 46204
Cost: $40

Stated Objectives

"A fast-paced game for up to four players. Players grab letters off the rotating cube and build words for points."

Teacher Evaluation

One teacher from the fifth grade level evaluated this program. The teacher indicated previous experience with ten or more microcomputer programs and utilization of ten or more programs with his or her class.

The teacher examined the program for 20 minutes before completing the evaluation form.

The program received low to failing grades from the teacher on almost all of the criteria. A major reason for such a low response was the difficulty encountered in getting the program to run properly. The directions seem very unclear and the teacher reported investing almost an hour in getting the program to run.

The program was given average scores for "likely to arouse student interest," and "learner responses require thought and are a challenge." Failing grades were given for "documents and printed guides give sufficient support," and "the program provides a clear evaluation of the student's performance."

The teacher indicated that he or she was not ready to use the program in the classroom. "Too frustrating .... one kid who stayed with it long enough to work it hated the program because it was so slow."

The teacher gave the program an overall rating of "50."

Student Evaluations

Six fifth grade students examined the program. All indicated experience with ten or more microcomputer programs prior to the field testing.

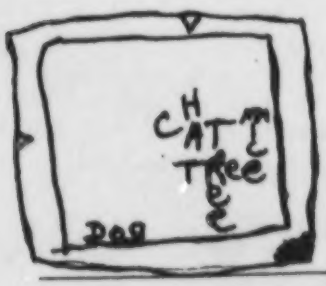
Each of the students worked with the program for an average of 31 minutes before completing an evaluation form.

Three of the students left before finishing the program because they "got bored." Two of the students agreed that they would like to try the program again. Four of the six agreed, "This program was a waste of my time."

Overall, the students gave Up for Grabs an averaged rating of "66."

Major idea remembered # one:

Major idea remembered # two:



TITLE: Vanilla Pilot
Intended Audience: Grade 5 and up
Curriculum: Authoring Program
Instructional Method: Authoring System, Tutorial
Hardware Format Tested: Commodore 64
Producer: Tamarack Software, Box 247, Darby, MT 59829
Distributed by K-12 Micromedia, P O Box 17, VAlley Cottage, NY 10989
Cost: $32

Stated Objectives

"The best way to learn to program in Vanilla Pilot is to program in Vanilla Pilot. Vanilla Pilot has 19 editing commands to make programming easy. Starting with the AUTO command, you can have your program lines automatically numbered for you. After you have written your program, you can TRACE through it line by line to see exactly what is happening. You can pinpoint exactly where a program error is occurring. You can see, or show your students, how a program works -- making this command an excellent teaching tool. Other editing features include such commands as FIND, CHANGE, RENUMBER, and LIST. The manual describes each command, gives you some examples to try out, then shows you what should happen with video screen displays and illustrations. Living inside your computer is a small invisible turtle. He is a friendly fellow and loves to draw. To color his pictures, the turtle has a palette of 16 colors on the Commodore 64. The commands make it easy to have him change directions and draw lines of any length. The sounds you can program range from a gun shot sound to a complicated musical rendition."

Teacher Evaluations

Two seventh grade math teachers evaluated this program. One had prior experience with ten or more programs, and the other was examining his or her third program with this field test.

Both teachers worked with the program for 225 minutes before completing an evaluation form.

Both teachers were ready to accept the authoring system into the classrom as another language for students to learn. Both felt that Vanilla Pilot was less complicated than COMAL or LOGO and more limited than those two languages. However, the purpose of Vanilla Pilot is to introduce the teacher or student to programming, and it seems to serve well for meeting the anxiety associated with the first steps.

The teachers gave the program high grades for "documents and printed guides give sufficient support," "verbal and graphic information is well paced and clear," "program is likely to arouse student interest," and "the program meets its stated objectives."

Overall, the teachers gave the program an averaged rating of "85."

Student Evaluations

Three fifth graders and three fourth graders were allowed to work with Vanilla Pilot for 40 minutes each. All had some experience with previous authoring programs.

All agreed, "I'd like to do this program again," and "I think my friends would enjoy this program." None of the students felt the program was too hard, and all disagreed with the statement, "This program is too easy." All were also in agreement that, "I would like to be graded by my teacher on the work I did with this program."

Overall, the students gave this program a rating of "85."

TITLE: Winning With Phonics
Intended Audience: Remedial Grades 6-12
Curriculum: Reading and Spelling
Instructional Method: Game
Hardware Format Tested: TRS 80
Producer and Author: Wise Owl Workshop, 1168 Avenida De Las Palmas, Livermore, CA 94550; Annie De Caprio and Clifford Schafer
Distributed by K-12 Micromedia, P O Box 17, Valley Cottage, NY 10989
Cost: $40

Stated Objectives

"The program begins with lists of rhyming words. After the teacher, parent, or paraprofessional is satisfied that the student can pronounce the words, the student engages in computer exercises. When he first calls up a list, using the number given before the heading of the list in the teacher's manual, he sees a word separated into a beginning consonant and the phonogram being taught, for example: B ACK. The word then comes together and takes its place at the top of the screen. The speed with which the list is displayed in this way can be controlled by the student or teacher. When the list is complete the student chooses any of four exercises and games of different levels of difficulty.

At the computer, Winning With Phonics presents the student with exercises and games that reinforce his understanding that identical phonograms represent identical sounds. Less consistent spellings of increasing difficulty lead him to the understanding that there may be more than one spelling for one sound, as the word "GOOD" and the rhyming "COULD.' Thus the lessons begin with the easiest and most common of the sixteen vowel sounds. The WORDS, however, are all common ones necessary for anyone who speaks and reads English."

Teacher Evaluations

One elementary school reading teacher evaluated the program. The teacher had worked with over ten microcomputer programs prior to the evaluation, although he or she had used only two in the classroom.

The teacher worked with the program for 30 minutes before completing an evaluation form.

Generally, the teacher gave the program slightly above average grades. High grades were given for "likely to arouse student interest," and "content of the program is accurate." High grades were also given for "learner responses require thought and are a challenge," and "relevant practice or testing is consistently provided."

The teacher gave average marks for "program provides sufficient review without unnecessary redundancy," and "feedback is consistant and provides remediation."

The teacher accepted the program as a new part of his or her instructional routine. "I plan to introduce a sound one day and use the program to reinforce the next." The teacher felt that the program was "easy for primary students to do."

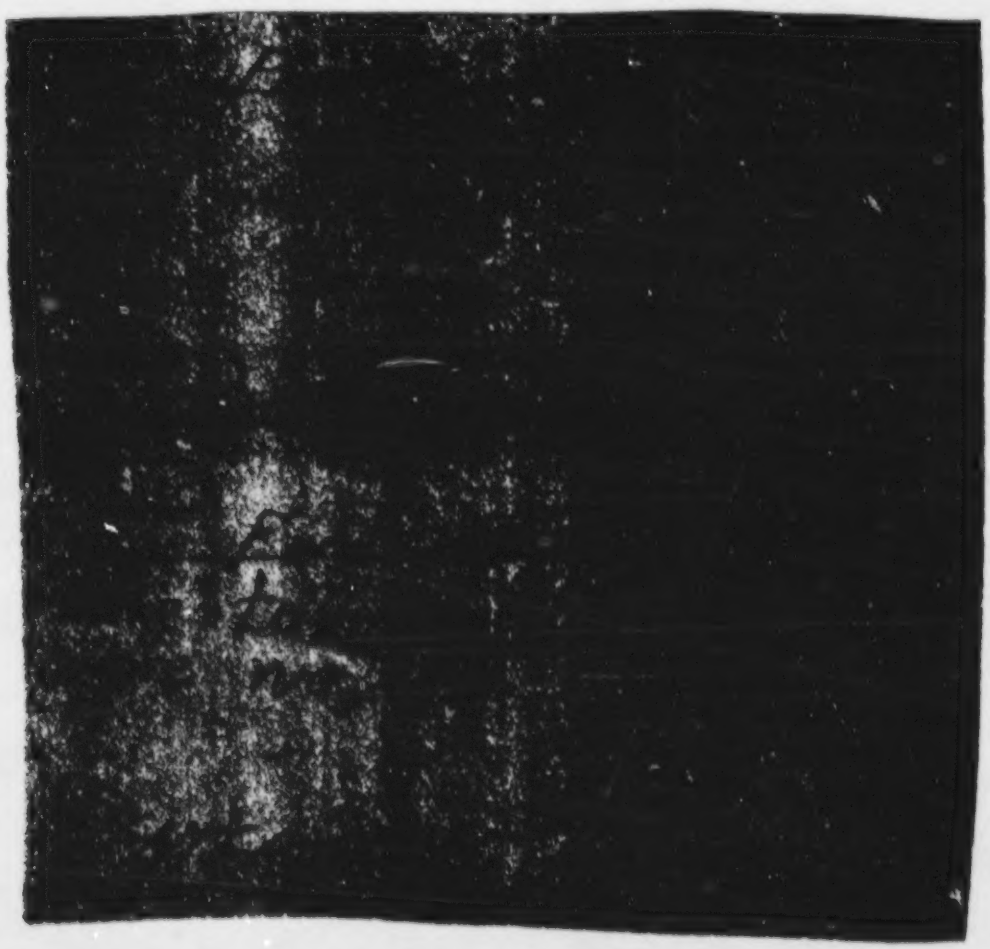
The teacher felt that the program would be best utilized in the first and second grades, and then used as a tool for remedial problems for the third grade.

Overall, the teacher gave the program a rating of "87."

Student Evaluations

Eight second graders spent 15 minutes each with the program. For all of the students, Winning With Phonics was the second program they had experienced.

All of the students agreed, "I would like to do this program again," and "I think my friends in class would like to do this program."



TITLE: Word Search
Intended Audience: Grades 4 and up
Curriculum: Language Arts
Instructional Method: Game
Hardware Format Tested: TRS 80
Producer and Author: Peterson Computer Systems, Joseph G. Peterson
Distributed by Joseph G. Peterson, 1109 Independence, West Chester, PA 19380
Cost: $16

Stated Objectives

This is one of several programs allowing the input of any words or terms you desire and then having them scrambled into a puzzle. You can control the number of terms placed into the system and determine vertical and horizontal options. The puzzles are printed out for students to use in a hunt for the words.

Teacher Evaluations

Seven elementary school teachers and media specialists worked with this program. All had prior experience with ten or more programs.

Each teacher spent an average of 18 minutes with the program before completing an evaluation form.

The teachers gave the program high grades for "likely to arouse student interest," and "meets its own stated objectives."

The teachers expressed a great deal of satisfaction with the program:
"Great for spelling and vocabulary words...very easy to use."
"I think the program is easy enough for the kids to put their own words in to make a word search puzzle."
"...a great time-saver...enables vocabulary areas to be used as word search puzzles which children enjoy..."
"Program could be used to develop puzzles using the vocabulary in many content areas, including math, geography, and science."

The teachers noted a few weaknesses:
"...cannot edit entered words without complete retyping."
"The list of printed words used in the puzzle are listed in one column and tends to, if more than 20 words, run longer than one printed page length."
"Two words must be typed as one...New York is NEWYORK in the word list."

Overall, the teachers rated the program an exceptionally high "96."

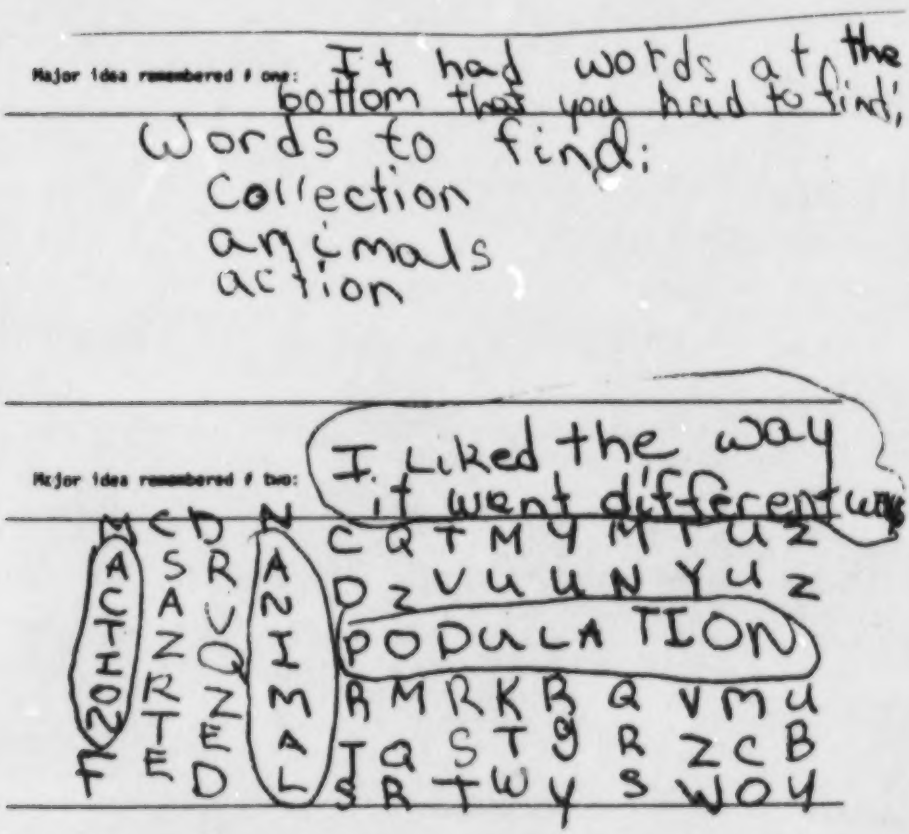
Student Evaluations

Ten fourth graders worked with the program and puzzles form the program. All had previous experience with ten or more other microcomputer programs.

Since the position statements did not really apply to the evaluation of this program, some of the students' written responses to what was learned or remembered reflect student opinions:

"I liked it because the letters are big and you have a lot of room to circle."
"I like the side-ways words."
"I like finding words."

Overall, the students rated the program at an exceptionally high "97."



TITLE: Working with the Alphabet
Intended Audience: K-3
Curriculum: Learning your letters
Instructional Method: Rote drill
Hardware Format Tested: Apple II
Distributed by Filmcraft Audiovisuals, Att: Hank Glesing, 5323 W 86th, Indianapolis, IN 46268
Cost: $34

Stated Objectives

This program is for students who are just learning the alphabet. The program offers several levels from letter identification to allowing the student to decide which letters are in correct alphabetical order.

Teacher Evaluations

Five first grade teachers and one reading teacher evaluated this program. This total of six teacher evaluators gave us a wider field of opinion than the average of three teacher evaluations per program during the first year of field testing. These teachers had a fairly high experience level with microcomputer programs as five of the six had worked with eight or more programs prior to completing the form for this program. However, only two of the teachers had a great deal of experience with using programs with students as only two indicated using ten or more programs in the classroom prior to the evaluation. Three of the evaluators had never utilized a microcomputer program with their students prior to this field testing.

On the average, the teachers examined the program for 14 minutes before completing the evaluation form.

Grading and comments from the two teachers who had a great deal of experience with microcomputer program did not differ greatly from the group as a whole, therefore the six teachers' comments are summarized together.

Half of the evaluators felt that the program failed to meet its stated objectives. Four of the evaluators gave the program failing ("D" or "F") marks for "likely to arouse student interest." Five of the six teachers gave the program below average marks for "verbal and graphic information is well paced and clear," "relevant practice or testing is consistently provided," "the instructional approach suits the program's content," and "documents or printed guides give sufficient support." Four of the teachers gave the program a failing grade for "provides a clear evaluation of the student's performance."

All of the teachers noted that the program was easy for first graders to follow and that there was plenty of repetition for remedial practice.

The teachers commented, however, "...the children got bored quickly..."

Three of teachers had worked with software covering the same objectives and two program were recommended over Working with the Alphabet. Those programs providing "better content" and "better reinforcement" were

Alpha Letter Drop and Alphabetizing--Little Bee.

Two of the teachers indicated that the program could be used as a supplement in the classroom, but most refused to even consider the program for future classroom use.

The teachers gave the program an average rating of "47." This low rating represents more than one deviation from the average rating of "73" given to the field of program during the first year of field testing.

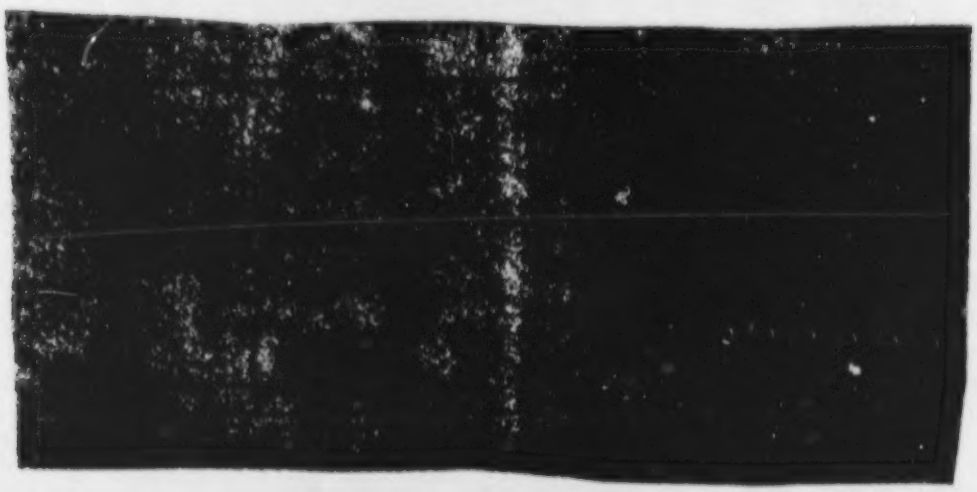
Student Evaluations

A total of 45 first graders completed evaluation forms. All of the students indicated that they had experience with at least five microcomputer programs prior to this program. On the average, a student spent 12 minutes with the program before completing the evaluation form.

The students responded to four questions read to them by their teacher. Although the marked responses indicate a favorable acceptance of the program, when compared to the reaction to the other programs field tested the reaction is less impressive in positive terms.

Eighty percent of the first graders indicated they would like to do the program again, but the average response to such a question for the programs tested was an extremely high 98%. Ninty-one percent indicated that their friends would enjoy the program, compared to 97% agreeing to the statement from the entire field. A rather low 64% agreed that they could do this program without the help from their teacher, compared to 97% from the entire field. Only 73% "liked the pictures," while 82% of the entire field "liked the pictures."

Six of the students stopped the program and did not continue, even though time was given, because they said they were "bored."



RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

The following section contains the names and addresses of about 100 microcomputer vendors contacted during this project. In most cases, the local distributors were very willing to assist us and we have included specific names and addresses for Indianapolis area people with which you should feel free to make contact.

Acquiring micrcomputer programs, because it is such a new technology, is a very time consuming process. Gloria Haycock was in contact with over 200 microcomputer authors, cottages, warehouses and vendors during the first year of this project. Her impressions of service to our requests have been summarized on the following pages. An "excellent" rating indicates this vendor was willing to service us promptly and allowed for up to 60 days previewing, and in some cases as much as 90 days. "Good" and "Fair" ratings indicate those producers or vendors who were willing to provide programs, but placed restrictions on the previewing by requesting initial payment with the promise to refund or limiting the preview period to fewer than 60 days. In some cases, vendors are noted as being "very slow" because their response to our first request for programs was not confirmed for several months. Those receiving "poor" notation were vendors who failed to provide any agreeable service arrangement to allow our schools to preview and to evaluate the programs. It should be remembered that these ratings are based on service from September 1983 to March 1984 and the quality of service will change with time, management and your own working relationship with the vendor.

The information on the following pages identifies vendors, producers, local sales representatives, and qualifies the service of the company. A "Y" means yes and an "N" means no.

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY ADDRESS ADDRESS CITY COMMENTS	VEND.	PROD.	PREV.	SERVICE
		SALES REPRESENTATIVE		
APPLE COMPUTER, INC. 10260 BANDLEY DRIVE CUPERTINO, CA 95014 MUST BUY FROM DISTRIBUTOR	N	Y	N	
AVC 2702 APPLEGATE INDIANAPOLIS, IN 46203 COMMODORE MATERIALS	Y	N	Y	GOOD
		SHARON ENDERLE		
CAMBRIDGE DEVELOPMENT LAB 100 FIFTH AVE WALTHAM, MA 02154 GOOD SCIENCE MATERIAL	Y	Y	Y	EXCELLENT
CAREER AIDS, INC. 8950 LURLINE AVE DEPT J CHATSWORTH, CA 91311	Y	N	Y	GOOD
CARL GOLDNER RT 2, BOX46 FLORAL CITY, FLA 32636	N	Y	N	
		ANTRON INTL		
CAXTON SOFTWARE 10-14 BEDFORD ST. COVENT GARDEN LONDON, ENGLAND WC 2E9HE	Y	Y	Y	FAIR
COLUMBIA COMPUTING SERVICES 8611 SOUTH 212TH ST KEN, WA 98031	Y	Y	Y	EXCELLENT
COMPRESS P.O. BOX 102 WENTWORTH, NH 03282	Y	Y	Y	EXCELLENT
		THOMAS L. SEARS, GEN. MGR.		

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY ADDRESS ADDRESS CITY COMMENTS	VEND.	PROD.	PREV.	SERVICE
		SALES REPRESENTATIVE		
COSMIC COMPUTERS 727 BREA CANYON RD SUITE 16 WALNUT, CA 91789			N	
CRAM, GEO F. CO. 301 S. LA SALLE INDIANAPOLIS, IN 46204	Y	Y	Y	EXCELLENT
		JOHN TALBOTT		
CREATIVE PUBLICATIONS P.O. BOX 10328 PALO ALTO, CA 94303	Y	Y	Y	EXCELLENT
DATA TRANSFORMS, INC. 616 WASHINGTON SUITE 106 DENVER, CO 80203 PREVIEW PRIVILEGES THROUGH LOCAL VENDORS ONLY	N	Y	N	
		SOFTWARE EXCHANGE		
EARLY GAMES SHELARD PLAZA N #140 MINNEAPOLIS, MN 55426 AVAILABLE THROUGH OTHER VENDORS AS WELL	Y	Y	Y	EXCELLENT
EDU-WARE, INC. 22222 SHERMAN WAY SUITE 203 CANOGA PARK, CA 91303 ALSO AVAILABLE THROUGH OTHER VENDORS	Y	Y	Y	EXCELLENT
EDUCATIONAL ACTIVITIES, INC. P.O. BOX 392 FREEPORT, NY 11521 ALSO AVAILABLE THROUGH LOCAL VENDORS	Y	Y	Y	EXCELLENT
EDUCATIONAL AUDIO VISUALS/EAV PLEASANTVILLE, NY 10570	Y	Y	Y	EXCELLENT

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY ADDRESS ADDRESS CITY COMMENTS	VEND.	PROD.	PREV.	SERVICE SALES REPRESENTATIVE
EDUCATIONAL RECORD SALES 157 CHAMBERS ST. NEW YORK, NY 10007	Y	N	Y	EXCELLENT
EMC PUBLISHING 300 YORK AVE. ST. PAUL, MN 55101	Y	Y	Y	EXCELLENT
ENCYCLOPEDIA BRITANNICA 425 N. MICHIGAN CHICAGO, IL 60611	Y	Y	Y	GOOD
EYE GATE MEDIA 3333 ELSTON AVE. CHICAGO, IL 60618	Y	Y	Y	EXCELLENT SANDRA NOLAN
FILMCRAFT AUDIOVISUALS 5323 W. 86TH ST. INDIANAPOLIS, IN 46268 AREA REP FOR NUMBER OF COMPANIES	Y	N	Y	EXCELLENT HANK GLESING
FOCUS MEDIA, INC 839 STEWART AVE GARDEN CITY, NY 11530	Y	Y	Y	EXCELLENT
FOLLETT LIBRARY BOOK CO 4506 N.W. HIGHWAY CRYSTAL LAKE, IL 60014	Y	N	Y	GOOD
HARTLEY 123 BRIDGE DIMONDALE, MI 48821 ALSO AVAILABLE THROUGH OTHER COMPANIES	Y	Y	Y	EXCELLENT SANDRA NOLAN/KELSO/MARBAUGH

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY ADDRESS ADDRESS CITY COMMENTS	VEND. SALES REPRESENTATIVE	PROD.	PREV.	SERVICE
HI-TECH MARKETING 343 WAINWRIGHT NORTHBROOK, IL 60062			N	
HRM SOFTWARE SAME-DAY SERVICE DEPT. 175 TOMPKINS AVE. PLEASANTVILLE, NY 100570	Y	Y	Y	EXCELLENT
ISLAND SOFTWARE BOX 300 LAKE GROVE, NY 11755	Y	Y	Y	EXCELLENT
J & S SOFTWARE 140 REID AVE PORT WASHINGTON, NY 10050 ALSO AVAILABLE THROUGH OTHER VENDORS	Y	Y	Y	EXCELLENT
JOSEPH G. PETERSON 1109 INDEPENDENCE WEST CHESTER, PA 19380 COTTAGE INDUSTRY	Y	Y	Y	GOOD
K-12 MICROMEDIA P.O. BOX 17 VALLEY COTTAGE, NY 10989 CATALOG AVAILABLE	Y	N	Y	EXCELLENT
KRELL SOFTWARE CORP. 1320 STONY BROOK ROAD STONY BROOK, NY 11790 DID NOT RESPOND TO REQUEST-MAT. AVAIL THROUGH VENDORS	N	Y	Y	
LIGHTNING SOFTWARE P.O. BOX 11725 PALO ALTO, CA 94506			N	

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY ADDRESS ADDRESS CITY COMMENTS	VEND.	PROD.	PREV.	SERVICE
		SALES REPRESENTATIVE		
LITTLE BEE ED. PROGRAMS P.O. BOX 262 MASSILON, OH 44648	Y	Y	Y	EXCELLENT
MARBAUGH 601 N. CAPITOL INDIANAPOLIS, IN 46204 CATALOG OF SOFTWARE AVAIL.	Y	N	Y	EXCELLENT
		LESLIE HAY		
MCE INC. 157 S.KALAMAZOO MALL KALAMAZOO, MI 49007 ORDER THROUGH MICROTEACH	N	Y	N	
MCGRAW-HILL BOOK COMPANY SCHOOL DIVISION 1221 AVENUE OF THE AMERICAS NEW YORK, NY 10020	Y	Y	Y	GOOD
MICRO CENTER DEPT. ME 7 1 P.O. BOX 6 PLEASANTVILLE, NY 10570 SAME AS SUNBURST	Y	N	Y	GOOD
MICRO ED, INC. P.O. BOX 444005 EDEN PRAIRIE, MN 35344 LARGE CATALOG OF SOFTWARE/SENDS PREVIEW DISKS	Y	N	Y	EXCELLENT
MICRO LEARNINGWARE HWY 66 SO. P.O. BOX 307 MANKATO, MN 56002	Y	Y	Y	EXCELLENT
MICROTEACH 2707 LEER ST. SOUTH BEND, IN 46614 ESPECIALLY GOOD SOURCE FOR COMMODORE MATERIALS	Y	N	Y	EXCELLENT
		LEAH SILVER		

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY ADDRESS ADDRESS CITY COMMENTS	VEND.	PROD.	PREV.	SERVICE
		SALES REPRESENTATIVE		
MILLIKEN PUBLISHING CO 1100 RESEARCH BOULEVARD	Y	Y	Y	EXCELLENT
	KELSO			
ST. LOUIS, MO 63132 AVAIL DIRECT OR THROUGH VENDORS IN AREA				
MIRAGE CONCEPTS 2519 W. SHAW SUITE 106 FRESNO, CA 93711	Y	Y	Y	GOOD
MODULAR EDUCATIONAL PROGRAMS BOX 100 VINE ROAD	Y	N	Y	EXCELLENT
	STERLING DAVIS			
TYNER, IN 46572 CATALOGS AVAIL FOR NUMBER OF COMPANIES				
MUSE SOFTWARE 347 N. CHARLES ST. BALTIMORE, MD 21201	Y	Y	N	
NATIONAL ED. SOFTWARE SERVICES 1879 LOCUST DRIVE	Y	Y	Y	EXCELLENT
VERONA, WI 53593 SOURCE FOR CAREER MATERIALS				
OPPORTUNITIES FOR LEARNING 8950 LURLINE AVE. DEPT 51 CHATSWORTH, CA 91311	Y	Y	Y	EXCELLENT
PROGRAM STORE (THE) BOX 9582 4200 WISCONSIN AVE NW WASHINGTON, DC 20016	Y	N	N	GOOD
QUEUE, INC. 5 CHAPEL HILL DRIVE	Y	N	Y	GOOD
FAIRFIELD, CT 06432 MAY NEED TO SUB. TO NEWSLETTER IN ORDER TO PREVIEW				

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY ADDRESS ADDRESS CITY COMMENTS	VEND.	PROD.	PREV.	SERVICE SALES REPRESENTATIVE
RADIO SHACK 10013 E. WASHINGTON INDIANAPOLIS, IN 46229	Y	Y	Y	EXCELLENT RICHARD LOWERY
RAINBOW COMPUTER CORPORATION 490 LANCASTER PIKE FRAZER, PA 19355			N	
RANDOM HOUSE SCHOOL DIVISION 400 HAHN RD WESTMINSTER, MD 21157	Y	Y	Y	FAIR SAM THOMPSON
RHIANNON 3717 TITAN DR. RICHMOND, VA 23225 MUST PURCHASE THROUGH LOCAL VENDORS	N	Y	N	
RIGHT ON PROGRAMS 140 E. MAIN ST. HUNTINGTON, NY 11743 PROGRAMS ALSO AVAILABLE THROUGH OTHER VENDORS	Y	Y	Y	EXCELLENT
SCHOOL & HOME COURSEWARE DEPT 920 1341 BULLDOG LANE FRESNO, CA 93710 LIMITED MATERIALS	Y	Y	Y	GOOD
SHOEMAKER MOTION PICTURE CO 3901 MEADOWS DRIVE INDIANAPOLIS, IN 46205	Y	N	Y	EXCELLENT RANDY SHOEMAKER
SJB DISTRIBUTORS 10520 PLANO RD SUITE 206 DALLAS, TX 75328	Y	N	Y	GOOD

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY / ADDRESS / CITY / COMMENTS	VEND.	PROD.	PREV.	SERVICE
		SALES REPRESENTATIVE		
SLOSSON EDUCATIONAL PUBL., INC P.O. BOX 280 EAST AURORA, NY 14052 SOURCE OF TEXAS INSTRUMENT SOFTWARE	Y	Y	Y	EXCELLENT
SOCIETY FOR VISUAL EDUCATION 1345 DIVERSEY PARKWAY CHICAGO, IL 60614	Y	Y	Y	EXCELLENT
		JIM FORBES		
SOFTWARE EXCHANGE 2439 EAST 65TH ST GLENLAKE PLAZA INDIANAPOLIS, IN 46220 STORE HAS APPLE/COMMODORE/ATARI SOFTWARE/BOOKS/SUPPL.	Y	N	Y	EXCELLENT
		GARY PIRINELLI		
SUNBURST COMMUNICATIONS 39 WASHINGTON AVE PLEASANTVILLE, NY 10570 SOFTWARE ALSO AVAILABLE THROUGH OTHER COMPANIES	Y	Y	Y	EXCELLENT
TAMARACK SOFTWARE P.O. BOX 247 DARBY, MT 59829	N	Y	N	
TAYLORMADE SOFTWARE P.O. BOX 5574 LINCOLN, NE 68505	Y	Y	Y	GOOD
TEACHING TOOLS P.O. BOX 50065 PALO ALTO, CA 94303	Y	Y	Y	GOOD
TREEHOUSE PUBLISHING CO. P.O. BOX 35461 PHOENIX, AR 85069 DID NOT RESPOND TO REQUEST FOR PREVIEW MATERIALS				

RECOMMENDATIONS OF SOURCES FOR COMPUTER SOFTWARE

COMPANY ADDRESS ADDRESS CITY COMMENTS	VEND.	PROD.	PREV.	SERVICE
	SALES REPRESENTATIVE			
UNIVERSAL SOFTWARE P.O. 955 CLAREMONT, NH 03743	N	Y	N	
	AMERICAN MICRO MEDIA			
UNIVERSITY OF ILLINOIS 1401 S. MARYLAND DR. URBANA, IL 61801 AGRICULTURE SOFTWARE	Y	Y	N	GOOD
VIRGINIA MICRO SYSTEMS 13646 JEFF DAVIS HIGHWAY WOODBRIDGE, VA 22191	Y	Y	Y	GOOD

sample agenda

A Lilly Endowment Project

The Evansville-Vanderbaugh Schools
Microcomputer Software Evaluation

Workshop Agenda

Saturday January 28, 1984

Richmond site contact person: MIKE TRON, Media Supervisor, 216 SE 9th, Evansville.
Workshop director: DANIEL CALLISON, Assistant Professor, School of Library and Information Science, Indiana University, Bloomington
Project Coordinator: GLORIA HAYCOCK, Media Supervisor, Northwest Consolidated Schools, Fairland

1. Evansville is one of nine sites for this project during a two-year period, ending in May 1985. Others: Monroe County, Ft. Wayne, Fairland, Portage, Richmond, Lafayette, Carmel and Indiana University.

2. The project was financed by the Lilly Endowment for the following reasons:
   a. to develop a teacher and student field-testing process for microcomputer software and to
   b. provide the results of such evaluation to all school corporations in Indiana

3. Prior to this workshop, general topic or grade areas were determined through your cite contact person and then specific programs were selected for the Evansville Corporation to evaluate. These titles were determined by representatives of the Evansville Corporation and will become a part of the Evansville materials collection in the future.

4. A copy of Evaluator's Guide for Microcomputer-Based Instructional Packages (International Council for Computers in Education, University of Oregon 1983) has been provided for each workshop participant.

   This guide should serve to define terms and provide a common reference for all teachers involved. We have developed special evaluation forms based on the approach described in the MicroSIFT Guide. Content of these forms will be discussed as each teacher, student or media specialist who makes an evaluation within his or her own educational environment should complete one form for each program examined.

5. It is NOT our task today to completely view and evaluate the programs. Our major task is to determine those programs you are willing to schedule and evaluate for one to three weeks. The program(s) you select will be sent to you through inter-school mail along with evaluation forms. Therefore, when you schedule a program today you are telling us that:

a. you have an interest and expertise in the content of the program
b. you have access to the necessary hardware to operate the program
c. you represent several teachers in your building who are willing to evaluate the program
d. you are willing to work with students and allow them to view and evaluate the program

6. Generally, we have found that in order to allow at least three teachers and at least 20 students to completely work through a program, at least five days must be allowed.

   You may schedule more time if you so desire, but please do not schedule a program unless you can carry through with the complete evaluation process.

7. A "complete" evaluation includes the following:

   a. selecting one program from the series on a given tape or disk for which you feel you can generate helpful information concerning the program's value to other teachers and students

   b. go through the entire program doing the "best" you can to answer the questions correctly and get a general feel for the content

   c. run the program again, but take the role of a student who either may have problems with the content or who wants to "beat the computer" at its own game...this means you should feed as many incorrect responses as possible and determine how the program reacts

   d. complete the teacher evaluation form in <u>detail</u>

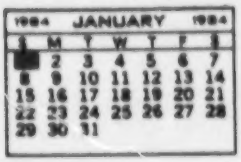
   e. allow students to run the programming, and to complete their own evaluation form

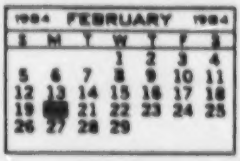
   f. forward all completed forms to MIKE TRON by <u>APRIL 20</u>.

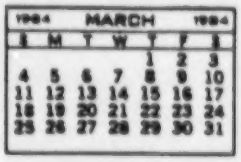
8. Today you should shop for a couple of programs which can be scheduled for you to field-test during the next two months. Give yourself at least five school days or up to three weeks for the testing, depending on how many people you can get involved. (add a couple of days at each end of the period to allow for delivery to other teachers)

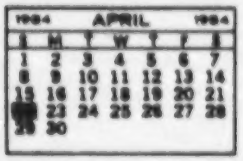
Evansville -- 3

You may schedule the program by writing in your name, building, number and grade of students, number of additional teachers you plan to involve, and the dates you wish to have the program.









9. Please plan to shop around and view as many of the programs today as possible. Try to see a little of many programs so you can make a choice. Save your "heavy work" for later.

10. No refreshments near the computers, please.

The Need for Centralized Control of Selection, Evaluation and Acquisition of Microcomputer Software

Daniel Callison
Gloria Haycock

During the past year, we have worked with several school corporations in the development of a method for field-testing software. Experience is reinforcing a major issue, "The evaluation selection and acquisition of educational microcomputer software has become a complex and frustrating process." The reasons for such complications are clear (1):

a. Any innovative or revolutionary instructional product in a free society will involve elements of nonstandardization, competition and false promotion until the stronger producers obtain control. We are experiencing the free market system in education and must beware of its dangers as well as its advantages.

b. Any innovation that seems to promise to solve some of the major problems in modern education will be over-promoted and place pressure on schools to buy now in order to not slip behind. The computer is something tangible that administrators and parents can point to and say "our children are getting the best in the educational process."

c. Any innovation brings uncertainty in established institutions as to who should be responsible for its diffusion and development. It takes time to establish effective leadership.

d. Any innovation will cause conflict with established procedures which have proven successful in the past. There is always the danger of approaching the acceptance of new methods by utilizing a simple approach of "scrapping all of the establishment, good and bad, in order to make way for the new."

As we have progressed through the first quarter of a two year project in Indiana for the evaluation of microcomputer software, another important issue keeps recurring. "In order for microcomputer innovation to be accepted and utilized wisely, school districts must first establish a central core group that has the time, money, expertise and power to establish long-range plans and coordinate negotiation efforts with the vast field of micro software producers and distributors."

The 1983 Report on Secondary Education in America by the Carnegie Foundation for the Advancement of Teaching emphasizes this need for such coordinated effort. Citing the past problems with instructional television and programmed instruction which were both over-promoted and under-coordinated with inefficient funding and staffing, the Foundation warns public schools(2):

> No school should buy computers, or any other expensive piece of hardware, until key questions have been asked -- and answered. Why is this purchase being made? Is available software as good as the equipment? What educational objectives will be served? Which students will use the new equipment, when and why?
>
> In purchasing computers, schools should base their decisions not only on the quality of the equipment, but also on the quality of the instructional material available. School districts also should take into account the commitment of the computer company to work alone -- or in collaboration with other companies -- to develop instructional materials for schools.

As we move through Indiana with a series of micro software evaluation workshops, it becomes clear that teachers and students who demonstrate an ability to critique software for their own purposes, and have the ability to see beyond personal utilization and invision diffusion into other areas of the curriculum should be supported in such efforts. It is a centralized core of individuals who can best field and deal with the complex issues in software selection.

The Core Group

Who are the members of this core group? In any given school district at this date, a select group of individuals can be identified as having the interest and expertise to screen the microcomputer problems for the district. Generally, these people have been willing to experiment with innovation before. They have been willing to give the extra time and effort to not only try a new approach, but willing to admit mistakes. They are able to adjust and try again until the innovation is either accepted into the real environment with practical modifications or discarded with adequate evidence that it will not work.

These people do not need to be computer wizards or mechanically minded (although this does not harm the process either). They must be individuals who can identify the necessary elements essential to

the learning process. They can invision the end product of the learner by which the student demonstrates specific abilities or attitudes acquired through the learning experience. They can outline methods or activities that allow the learner to move from an entry level to achievement of the desired behavior. They are open minded to the possible applications of computer technology to educational activities, yet always on the defensive to protect instructional methods which work very well without additional technology or change. They do not paint computer innovation with a wide brush stroke that implies all knowledge areas match to the computer assisted process at this time, or in the future.

From the teacher population may come professionals who are currently demonstrating some success with computer assisted instruction. Also to be considered are teachers who have a proven record of strong personal teaching techniques and organizational abilities. This group may total no more than ten who are appointed and charged with the responsibility to coordinate the development of computer assisted instruction for the entire district.

The leader of this group may come from either the teacher or administrative ranks, but should be given the power to make final decisions for the core group and given an open voice to the school board for making recommendations on long-range plans and major equipment or material purchases. Along with the responsibility of decision-making should come the full support of the district in the form of released time, merit pay, and secretarial assistance. These are as important elements of the "budget for computer assisted instructional services" as the funds for the computer hardware and software itself. A district which spends tens of thousands of dollars on hardware alone without funds to support active review and evaluation of the innovation within the district is very foolish.(3) (4)

The complications of this technological revolution are just beginning. The computer represents only a "tip" of the larger questions to come. This core group should, therefore, not even be named the "computer committee" but be regarded as the centralized group that oversees the major innovations in instructional management, instructional design and development, and instructional applications which are the true elements to the coming technological revolution.

We mentioned students in relationship to this core group. Yes, they are most important.(5) They may not serve as decision-makers as such, but if we have never considered student input before (and usually we have failed to) this is a very important time to do so. Within the district a framework for student opinions on instructional software should be established. Students must have the opportunity to test and evaluate software alongside teacher evaluation. We are

entering an era of individualized instruction that we have not experienced before. No longer will it be possible for the classroom teacher to gather general impressions from the class as a whole, but evaluation will demand that the individual student be allowed to express his or her own concerns about the demands of the program, pacing, branching, and remedial feedback. Field-testing of software can not be left to the few professional groups that have applied this technique in the past. In-service programs for evaluation of software have become as important for the student as they are for the teacher.

Core Group Responsibilities

What are the tasks of this core group? We want to outline a few that seem to be major. Other responsibilities may develop at individual districts, but the major concern here is that there is a systematic process established for coordinated selection, evaluation and acquisition of microcomputer software. In addition, communication of the evaluation results should be given not only to professional members of that school district, but shared with neighboring regional education areas.

In 1975, American Association of School Librarians and the Association of Educational Communications Technology stated the need for district or regional coordination centers which directed the production and distribution of innovative media.(6) It was suggested that these centers would handle the difficult technologies that were either extremely expensive for the building level or had not settled into the mainstream of an acceptable information format. The book, the periodical, the filmstrip and even the motion picture and video cassette have settled into this mainstream. The microcomputer and its software components and hardware peripherals have not, thus the following issues should be under the direction of a central or core group:

1. The core group must have input concerning the definition of computer literacy and how basic computer skills will be taught in the curriculum. There are two responsibilities here. First, the broad concept of computer literacy should be that of introducing into all areas of the curriculum how computers will effect our lives in the future, and how this technology is touching our society now. This task will not be fulfilled without in-service education of the entire faculty. Each teacher must answer the question, "How has the computer effected my general field of knowledge?" Thus, the teacher must begin to think and present content materials with the computer revolution in mind.

Second, the specific skills of computer programming and utilization of the computer may really touch only a few subject areas in the school. Again the task will require in-service activities, but will be in the form of training teachers how to best utilize the computer itself in the instructional environment. Here the core group must target specific subject areas which are represented by teachers who display strong interests and abilities in the utilization of computers. The subject areas may vary from school district to school district and include physical education, science and English in one, while the other finds its strength in social studies, mathematics and foreign language. The point to consider at this date is the best expenditure of money, staff and time. If the district wants to make a noticeable and major impact on the curriculum, then it must "zero-in" on those specific areas which are "ready, willing and able" to capitalize on the technology.

It is just as important for this core group to move away from some areas of the curriculum as far as utilization of computer technology is concerned. There may be subject areas which have been especially strong over the past few years and to force innovation where it is not now needed or wanted can destroy such programs. If the art teachers can sustain a strong program without the addition of computer graphics, then let them continue. If the home economics program is successful without computer assisted analysis of nutrition, then it should proceed as before. These areas may simply have their turn at the application of the technology five to ten years down the line as staff and attitude changes allow for acceptance of the innovation. Some faculty members will not change until they see hard evidence of successful applications. This core group should strive for those few strong examples and the rest will come with time.

2. The core group should have budget and secretarial support staff in order to design and implement a complete software evaluation and acquisition process. There is a tremendous amount of paperwork involving the previewing and field-testing of microcomputer materials. Only when monies are provided for support staff, postage, duplication of written evaluations and management of invoices will this previewing become operational and beneficial.

The evaluation process will branch from this core group. In other words, the responsibilities of the core group include the identification of possible software. The core group controls negotiation of rights to preview since most distributors will not deal with individual teachers but will negotiate only on a district level. There must be central control of the purchasing procedures which vary from the small independent producer to the larger, established distributor. The actual hands-on evaluation of the software should reach out to include the teachers and students who will actually use the software.

Several points must be made in support of this centralized effort to deal with the previewing process. First, we have for the first time a media format that can be revised or cancelled literally overnight. All other formats, from filmstrips to motion pictures, were set in content for at least several years once they hit the market. Never would one see six different versions of a 30 minute video tape program, or worry if the new long playing record just purchased is the exact one that was reviewed and promoted or if there is a better production of the same record just around the corner. Microcomputer software provides this dilemma; it can be edited, revised,and reprogrammed. This changes content emphasis faster than the catalogs which advertise the materials can be printed. The core group can police, to some degree, the uncertainty of this revision process by contracting rights for acquiring the most up-to-date software. The agreement should include the right to be notified of future revisions with the option to either receive the revised program free of charge or at a minimal fee.

Second, many of the major companies refuse to provide preview or "On Approval" for microcomputer software because they simply can not meet the demands of all the individual teachers who are clammering for the right to "see before purchasing." The smaller producers do not have the mail order staff to support such a previewing practice. All distributors and producers are fearful of the track record of public schools who have copied (pirated) commercial television programs through off-air video taping.(7) (8) Microcomputer software distributors are vulnerable to the teacher who calls for a preview, copies the disk, and returns the original without purchase.(9)(10) The core group must establish credibility and assure that they will protect against such practices through support of fair use and prompt return of previewed materials. Some districts have adopted written policy statements which support copyright laws and enhance their opportunity to make contracts with producers.(11)

Third, network systems are becoming more and more popular and the software for such systems is just beginning to hit the market. The core group is needed in this situation because of the extremely high cost of the network programming. Software that may have run under one hundred dollars for the single computer unit will skyrocket to four to six hundred dollars in network format. The group must provide guidance in the consideration of purchasing materials which do not provide any additional instructional content, but will allow dozens of students to work at various points within the same program. Coordination of network programs establish a framework for future use of regional centralized banks of programming.

Fourth, the core group must establish a procedure that will allow teachers and students the time to field-test materials. It is possible to negotiate 15 to 30-day approval agreements with many distributors as long as the agreement is made with a district-wide representative. Subject specialists in the schools who have access to the hardware and are willing to give time for evaluation should be scheduled to participate. The evaluation process should be given time to work. This means that a 20 minute spot check of the software is not sufficient. Field-testing microcomputer software involves several teachers, each going through the following steps(12)(13):

a. Read the documentation and get an understanding of the program's objectives.

b. Run the program as it is intended to be operated; give it all the right answers and consider its responses for accurate information and challenge to the student.

c. Run the program as it is not intended to be operated; give it many wrong answers, push the wrong keys, don't follow instructions, and see if the program will handle the student who will either have problems with the content or willingly attempts to crash it.

After the teacher has gathered and written his or her impressions for the core group, several students should be allowed to operate the program too. For guidance, the students should be given the opportunity to write down their impressions of the programming and to answer such questions as, "What was easy or hard about this material?" "Would you like to be graded on your work with this program?" "Describe three facts or concepts you learned from this program."

A complete evaluation system allowing for hands-on viewing of the software overrides the current review sources for a selection of microcomputer software. Programs are entering and leaving the market faster than the review sources can publish their evaluations. In some cases, disks that contain six to ten individual programs are reviewed in a 100 word format that provides space for comments on only one of the programs. This makes it very difficult to get any true impressions of the entire disk when each of the programs may be designed for different subject areas and different ability levels.

3. The core group must take the responsibility of sharing its findings with neighboring districts, and regions around the state. It is important that this communication takes place through regional or state conferences. This means that several communication avenues must be established if they do not now exist(14):

a. The state department of education can provide the service of printing and distribution of comments from various core groups. In some cases, these microcomputer newsletters may soon take the form of electronic mail. Some school districts may be large enough to produce their own micro newsletter.

b. State media organizations should provide support of media fairs that allow presentations and demonstrations from core groups which show the utilization of educational software within the curriculum and use of management software for record keeping purposes.

c. Regional associations should be formed that allow the core groups to share information with interested teachers on weekends or in evening meetings.

Whatever format this information sharing takes, whether through the public school structure or in association with public libraries and other information sharing agencies, the main purpose is to tell others what works and what does not work. This exchange of information should also include letting others know about resource people or technical service people who are able to advise on specific problems.

4. Finally, this core group has a responsibility to keep in touch with the fast number of changes that are taking place in the microcomputer field so that the immediate technological revolutions will not come to the district as a complete surprise. Changes that are coming within the next five to ten years include advances in videotext systems that allow vast libraries of resource materials to be acquired online. Along with these new resource materials will come more and more of the currently expanding databases that give us powerful approaches to indexes and resource bibliographies. The format of traditional school reference tools, even textbooks themselves, will change with the refining of videotext and the addition of visuals and sound through videodisc.

The combination of microcomputer and videodisc will usher in another phase of nonstandardization as disk drives will change (smaller in size but increased storage capabilities); television terminals will become larger with higher resolution; new printers will allow for pictures to be copied from the screen; and synchronized sound systems will add a variety of audio enhancements (historic speeches, specific instructional directions, guides to pronouncing words).

The videodisc will also add motion to computer assisted instruction as we have not seen it in public school materials before. Crude animation serves the computer today, but soon motion picture footage

will become a standard aspect complete with single step frames, stop motion and reverse controls. The LASER technology will bring information storing disks that will not wear out, are safe to pass through any magnetic field and will allow us to store thousands of images more compactly than ever before. Such advancements will make the current microcomputer revolution seem problem-free.

Summary

The acceptance of microcomputer technology by public schools offers another change for educators to demonstrate if they can effectively organize to get the most from instructional innovation. At the present time the public schools are being swamped with hundreds of software materials that have doubtful applications to any educational environment. At the same time educators are being pressed to buy computer hardware in order to show that they are providing the very best educational opportunities for the student. As thousands of dollars are pumped into this latest innovation, it is wise to reflect on the past difficulties experienced with instructional television. We can not afford to allow this current innovation in computer assisted instruction to suffer the same fate. School districts must centralize their efforts and budget beyond the initial expenses of computer hardware.

Too many school districts have television monitors, videotape players and video cameras in the closet because no provisions were made to acquire staff and space to capitalize on the technology. No attempt was made to experiment, document and share results. Little was done to really involve teachers and students in a systematic approach to the development of instructional television. We should not make the same mistake with microcomputer technology.

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5. Top of the News. (Spring, 1983). Entire issue devoted to computers in education.

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7. Callison, Daniel. "Fair Payment for Fair Use in Future Information Technology Systems." Educational Technology (January, 1981).

8. Emmens, Carol. "To Tape or Not to Tape." School Library Journal. (November, 1983.)

9. Finkel, Leroy. "When is a Pirate a Thief?" Electronics Learning. (October, 1983).

10. Bell, Trudy. "Copying Computer Software for Educational Purposes: Is It Allowed?" Personal Computing. (November 1983).

11. "ICLE Publishes Statement on Software Copyright Violations." Electronic Learning. (October, 1983.)

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